PIXMA MP510
SERVICE MANUAL

Revision 0

QY8-13AZ-000

Scope

This manual has been issued by Canon Inc., to provide the service technicians of this product with the information necessary for qualified persons to learn technical theory, installation, maintenance, and repair of products. The manual covers information applicable in all regions where the product is sold. For this reason, it may contain information that is not applicable to your region.

Revision

This manual could include technical inaccuracies or typographical errors due to improvements or changes made to the product. When changes are made to the contents of the manual, Canon will release technical information when necessary. When substantial changes are made to the contents of the manual, Canon will issue a revised edition.

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I. MANUAL OUTLINE

This manual consists of the following three parts to provide information necessary to service the PIXMA MP510:

Part 1: Maintenance
Information on maintenance and troubleshooting of the PIXMA MP510

Part 2: Technical Reference
New technology and technical information such as FAQ's (Frequently Asked Questions) of the PIXMA MP510

Part 3: Appendix
Block diagrams and pin layouts of the PIXMA MP510

Reference:
This manual does not provide sufficient information for disassembly and reassembly procedures. Refer to the graphics in the separate Parts Catalog.

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Part 1: MAINTENANCE

Part 2: TECHNICAL REFERENCE

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1. MAINTENANCE

1-1. Adjustment, Periodic Maintenance, Periodic Replacement Parts, and Replacement Consumables by Service Engineer

(1) Adjustment

	Adjustment	Timing	Purpose	Tool	Approx. time
	EEPROM initialization	At logic board replacement	To initialize settings.	None. Perform in the service mode.	1 min.
	Destination settings (EEPROM settings)	At logic board replacement	To set the destination.	None. Perform in the service mode.	1 min.
	Ink absorber counter resetting (EEPROM settings)	- At logic board replacement - At ink absorber replacement	To reset the ink absorber counter.	None. Perform in the service mode.	1 min.
	Ink absorber counter value setting (EEPROM settings)	- At logic board replacement	To set the ink amount data in the ink absorber to the ink absorber counter.	None. Perform in the service mode.	1 min.
	Paper feed motor position adjustment[*1]	At paper feed motor replacement	To adjust the belt tension. (Position the paper feed motor so that the belt is stretched tight.)	None.	5 min.
	Carriage rail position adjustment	- At carriage unit replacement - After carriage rail removal and re-assembly	To adjust the distance between the print head and paper (between the carriage and the platen).	None.	5 min.
	Print head alignment	- At print head replacement - At logic board replacement - When print quality is not satisfying	To secure the dot placement accuracy.	None.	3 min. (manual, auto[*2])
	Grease application	- At carriage unit or carriage rail replacement - At LF earth spring or paper feed roller replacement - At platen replacement	To maintain sliding properties of the following items: - Carriage unit - LF earth spring - Eject roller	FLOIL KG-107A IF-20	1 min.
	Ink system function check	- At logic board replacement - At spur base unit replacement - At carriage unit replacement	To maintain detection functionality for presence of the ink tanks and each ink tank position.	None. Perform in the service mode.	1 min.
	LCD language settings	At logic board replacement	To set the language to be displayed on the LCD.	None. Perform in the user mode.	1 min.
	Document pressure sheet position adjustment	- At document pressure sheet replacement - At document pressure plate ass'y replacement	To adjust the pressure sheet to fit in place to the reference mark in the left back.	None.	1 min.

*1: The screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit.

*2: Automatic print head alignment using the print head alignment sheet (via the operation panel only).

(2) Periodic maintenance
No periodic maintenance is necessary.

(3) Periodic replacement parts
There are no parts in this machine that require periodic replacement by a service engineer.

(4) Replacement consumables
There are no consumables that require replacement by a service engineer.

1-2. Customer Maintenance

Adjustment	Timing	Purpose	Tool	Approx. time
Print head alignment	At print head replacement.	To ensure accurate dot placement.	- Machine buttons - Computer (MP driver)	3 min. (manual, auto*)
Print head cleaning	When print quality is not satisfying.	To improve nozzle conditions.	- Machine buttons - Computer (MP driver)	1 min.
Print head deep cleaning	When print quality is not satisfying, and not improved by print head cleaning.	To improve nozzle conditions.	- Machine buttons - Computer (MP driver)	2 min.
Ink tank replacement	When an ink tank becomes empty. ("No ink error" displayed on the monitor or on the machine LCD, or short flashing of an ink tank LED)	To replace the empty ink tank.	None.	1 min.
ASF paper feed roller cleaning	When paper does not feed properly, or when the print side of the paper is smeared	To clean the paper feed rollers.	Machine buttons	2 min.
Front feeder paper feed roller cleaning	When paper does not feed properly, or when the back side of the paper is smeared	To clean the paper feed rollers.	None. Manually clean the rollers with a cotton swab.	1 min.
Bottom plate cleaning	When the back side of the paper is smeared.	To clean the platen ribs.	- Machine buttons - Computer (MP driver)	1 min.
Scanning area cleaning	When the following are dirty: - Platen glass - Document pressure sheet	To clean the applicable items.	Soft, dry, and clean lint-free cloth.	1 min.

* Automatic print head alignment using the print head alignment sheet (via the operation panel only).

1-3. Product Life

(1) Machine

Specified print volume (I) or the years of use (II), whichever comes first.

(I) Print volume: 12,000 pages

Black	1,500 character pattern	5,500 pages
Color	7.5% duty per color pattern	3,600 pages
	A4, photo, borderless printing	200 pages
	4 x 6, photo, borderless printing	2,200 pages
	Postcard, photo, borderless printing	500 pages

(II) Years of use: 5 years of use

(2) Print head

Print volume: 40,000 pages

(3) Ink tank (target value)

Average yield	PGI-5BK	CLI-8C	CLI-8M	CLI-8Y
Color document (ISO/IEC FCD24712)[*1]	510 pages	880 pages	680 pages	690 pages
Photo (4" x 6")[*2]	(3,645 pages)	426 pages	280 pages	291 pages

*1: Declared yield value in accordance with ISO/IEC FCD24711. Values obtained by continuous printing.

*2: When printing Canon standard patterns on 4" x 6" Photo Paper Plus Glossy continuously with the default settings of Photo

Paper Plus Glossy using Windows XP printer driver in borderless printing mode and Windows XP Photo Printing Wizard. Declared yield value determined based on Canon standard method referring to ISO/IEC FCD24712.

Note: Ink yield may vary depending on texts/photos printed, applications software used, print mode and type of paper used.

1-4. Special Tools

Name	Tool No.	Application	Remarks
FLOIL KG-107A	QY9-0057-000	To be applied to the sliding portions of the carriage rail and main chassis.	In common with the S520.
ELECTRICITY GREASE IF-20	CK-8006-000	To be applied to the sliding portions of the LF earth spring.	

1-5. Serial Number Location

On the spur base unit (visible at the front center when the scanning unit is opened).

<Part 1: 1. MAINTENANCE>

2. LIST OF ERROR DISPLAY / INDICATION

Errors and warnings are displayed by the following ways:

1) Operator call errors are indicated by the Alarm LED lit in orange, and the error and its solution are displayed on the LCD in text and by icon.
2) Messages during printing from a computer are displayed on the MP driver Status Monitor.
3) Error codes are printed in the "operator call/service call error record" area in EEPROM information print.

Buttons valid when an operator call error occurs:

1) ON/OFF button: To turn the machine off and on again.
2) OK button: To clear and recover from an error. In some operator call errors, the error will automatically be cleared when the cause of the error is eliminated, and pressing the OK button may not be necessary.
3) Stop/Reset button: To cancel the job at error occurrence, and to clear the error.

2-1. Operator Call Errors (by Alarm LED Lit in Orange)

Error	Error code	Message on the LCD	Solution
No paper in the ASF.	[1000]	Auto sheet feeder. There is no paper. Load paper and press [OK].	Confirm that the ASF is selected as the paper source. Set the paper in the ASF, and press the OK button.
No paper in the front feeder.	[1003]	Front feeder. There is no paper. Load paper and press [OK].	Confirm that the front feeder is selected as the paper source. Set the paper in the front feeder, and press the OK button.
Paper jam.	[1300]	The paper is jammed. Clear the paper and press [OK].	Remove the jammed paper, and press the OK button.
Paper jam in the rear guide.	[1303]		
No ink.	[1600]	The following ink may have run out. Replacing the ink tank is recommended. (U041)	Replace the empty ink tank(s), and close the cover. Pressing the OK button will clear the error without ink tank replacement, however, ink may run out during printing.
Ink tank not installed.	[1660]	The following ink tank cannot be recognized. (Applicable ink tank icon) (U043)	Install the applicable ink tank(s) properly, and confirm that the LED's of all the ink tanks light red.
The print head is not installed, or it is not properly installed.	[1401]	Print head is not installed. Install the print head.	Install the print head properly.
Print head temperature sensor error	[1403]	The type of print head is incorrect. Install the correct print head.	Re-set the print head. If the error is not cleared, the print head may be defective. Replace the print head.
Faulty EEPROM data of the print head	[1405 / 1682]		
Multiple ink tanks of the same color installed.	[1681]	More than one ink tank of the following color is installed. (U071)	Replace the wrong ink tank(s) with the correct one(s).
Ink tank in a wrong position.	[1680]	Some ink tanks are not installed in place. (U072)	Install the ink tank(s) in the correct position.
Warning: The ink absorber becomes almost full.	[1700 / 1701 / 1710 / 1711]	Contact the support center or service center for ink absorber replacement. Press [OK] to continue printing.	Replace the ink absorber, and reset its counter. [See 3-3. Adjustment / Settings, (6) Service mode.] Pressing the OK button will exit the error, and enable printing without replacing the ink absorber. However, when the ink absorber becomes full, no further printing can be performed unless the applicable ink absorber is replaced.
The connected digital camera or digital video camera does not support Camera Direct Printing.	[2001]	Incompatible device detected. Remove the device.	Remove the cable between the camera and the machine.
Failed in automatic print head alignment.	[2500]	Failed to scan head alignment sheet. Check orientation and position, and make sure platen and sheet are clean. <See manual>	Press the OK button to clear the error, and perform automatic print head alignment again after confirming the following:

				- Fill in all the circles on the print head alignment sheet. - Place the sheet in the correct orientation and position.
The remaining ink amount unknown.	[1683]	(Applicable ink tank icon) The remaining level of the following ink cannot be correctly detected. Replace the ink tank. (U130)	An ink tank which has once been empty is installed. Replace the applicable ink tank with a new one. Printing with a once-empty ink tank can damage the printer. To continue printing without replacing the ink tank(s), press the OK button for 5 sec. or longer to disable the function to detect the remaining ink amount. After the operation, it is recorded in the printer EEPROM that the function to detect the remaining ink amount was disabled.	
Ink tank not recognized.	[1684]	The following ink tank cannot be recognized. (U140) (Applicable ink tank icon)	A non-supported ink tank is installed (the ink tank LED is turned off). Install the supported ink tanks.	
Ink tank not recognized.	[1410 to 1419]	The following ink tank cannot be recognized. (U150) (Applicable ink tank icon)	A hardware error occurred in an ink tank (the ink tank LED is turned off). Replace the ink tank(s).	
Scanning unit (printer cover) open.	[1200]	Cover is open. Close cover.	Close the scanning unit (printer cover).	

2-2. Service Call Errors (by Cyclic Blinking in Orange (Alarm LED) and Green (Power LED), or Both LEDs Lit)

Service call errors are indicated by the number of cycles the Alarm LED and Power LED blink, and the corresponding error code is displayed on the LCD.

Cycles of blinking in orange (Alarm LED) and green (Power LED)	Error	Error code	Conditions	Solution (Replacement of listed parts, which are likely to be faulty)
2 times	Carriage error	[5100]	An error occurred in the carriage encoder signal.	- Carriage unit (QM2-3753) - Timing slit film (QC1-9542) - Logic board (QM2-3827) - Carriage motor (QM2-3872)
3 times	Line feed error	[6000]	An error occurred in the LF encoder signal.	- Timing sensor unit (QM2-3878) - Timing slit disk film (QC1-9597) - Feed roller (QL2-1407) - Logic board (QM2-3827) - Paper feed motor (QM2-3873)
4 times	Purge cam sensor error	[5C00]	An error occurred in the purge unit.	- Purge unit (QM2-3754) - Logic board (QM2-3827)
5 times	ASF (cam) sensor error	[5700]	This error takes place when feeding paper from the ASF after an error occurred in the ASF cam sensor.	- Sheet feed unit (QM2-3762) - ASF_PE sensor board (QM2-3877) - Logic board (QM2-3827)
6 times	Internal temperature error	[5400]	The internal temperature is not proper.	- Logic board (QM2-3827) - Carriage unit (QM2-3753)

7 times	Ink absorber full	[5B00, 5B10, 5B01, 5B11]	The ink absorber is full.
			
			Error codes:
			Overseas:
			    5B00: Main ink absorber
			    5B10: Borderless-print ink absorber
			Japan:
			    5B01: Main ink absorber
				- Ink absorber kit (QY5-0178)

			5B11: Borderless-print ink absorber	
8 times	Print head temperature rise error	[5200]	The print head temperature exceeded the specified value.	- Print head (QY6-0070) - Logic board (QM2-3827)
9 times	EEPROM error	[6800]	A problem occurred in writing to the EEPROM.	- Logic board (QM2-3827)
10 times	VH monitor error	[B200]	The internal temperature exceeded the specified value.	- Print head (QY6-0070) - Carriage unit (QM2-3753) - Logic board (QM2-3827)
12 times	PG position error	[5C10]	An error occurred in the PG motor during purging operation.	- Sheet feed unit (QM2-3762) - Logic board (QM2-3827) - Purge unit (QM2-3754)
15 times	USB Host VBUS overcurrent	[9000]	The USB Host VBUS is overloaded.	- Logic board (QM2-3827)
19 times	Ink tank position sensor error	[6502]	None of the ink tank position is detected.	- Spur base unit (QM2-3750) - Logic board (QM2-3827)
20 times	Other hardware error	[6500]	The PCI bus error is detected by the ASIC.	- Logic board (QM2-3827)
22 times	Scanner home position error	[5010]	The scanner unit cannot detect the home position, or the scanner unit warming-up is not performed properly at power-on. On the LCD, "Scanner is not operating correctly." is displayed.	- Scanner unit (QM2-3775)
Alarm and Power LEDs lit	ROM error, RAM error		A flash ROM or RAM checksum error occurred at hard-power-on.	- Logic board (QM2-3827)

Note: Before replacement of the logic board ass'y, check the ink absorber counter value (by service test print or EEPROM information print). If the counter value is 7% or more, also replace the ink absorber kit (QY5-0178) when replacing the logic board ass'y, or register the current ink absorber counter value to the replaced new logic board instead. [See 3-3. Adjustment / Settings, (9) Service mode, for details.]

2-3. Other Error Messages

Message on the LCD	Cause	Solution
The selected paper cannot be fed from front feeder. Change the paper source.	The paper type being used is not supported for paper feeding from the front feeder.	Change the paper source to the ASF.
Borderless print is not available for paper from the front feeder. Change the paper source and press [OK].	Borderless print is attempted when the front feeder is selected as the paper source.	Change the paper source to the ASF.
Cannot specify the followings together. Change one of the settings.	Settings made conflict each other.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
Device memory is full. Cannot continue process. Reduce the number of photos to print.	The memory is not sufficient to do the print job.	Reduce the amount of data to be printed, or print from a computer.
Failed to scan. Either document cannot be scanned or is not placed on the platen glass.	The machine failed in scanning the document for Fit-to-page copy, or photos or films were not recognized in pre-scanning.	Press the OK button to clear the error.
Press <>. (<>: Color button icon)	The Black button was pressed, but it is invalid.	A temporary error. Press the Color button to continue the operation.
Press <>. (<>: Black button icon)	The Color button was pressed, but it is invalid.	A temporary error. Press the Black button to continue the operation.
There are no photos in memory card.	Supported image files are not in the memory card.	A temporary error. - Confirm that supported image files are in the memory card. - Images with double-byte characters used in the file name (or folder name) may not be recognized. Change the file (or folder) name so that it contains only single-byte alphanumeric characters.

		- If images are edited on the computer, print them from the computer.
The value exceeds the number of copies you can print.	During selecting images or specifying the number of copies, the total print quantity exceeds the prescribed value of 999.	A temporary error. After the error message is displayed for a while, the last operation before the error is cancelled, and the total print quantity returns to the value before the error.
Memory card is not set. Insert the card after checking the direction.	No memory card is inserted in the slot.	Set a memory card.
DPOF information is not saved in the memory card.	DPOF print was selected in the menu, but no DPOF files are contained in the memory card.	A temporary error. The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
The number of copies to print is not set. Input the number of copies.	Multi-photo print was attempted without specifying the print quantity (with the print quantity left "0" (zero)).	A temporary error. The error message is displayed for a while, then disappears. Specify the print quantity.
This layout is available only for A4 or 8.5"x11"(215x279).	In Layout print, "Mixed 1, 2, or 3" which is available only with A4 or LTR size paper is selected, but the paper size is not set to A4 or LTR.	A temporary error. The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
Settings cannot be changed when printing stickers.	With Sticker print selected, the Settings button was pressed.	A temporary error. The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
Change the setting after removing the card.	With a memory card inserted in the slot, change of the Read/Write attribute was attempted.	A temporary error. Remove the memory card, then change the Read/Write attribute.
The card is currently write-enabled. Set to read-only mode before performing operation.	With the memory card set to the Read/write mode, Card Direct printing operation was attempted from the menu.	A temporary error. Remove the memory card, change the memory card setting to Read-only, then perform Card Direct printing.
The paper size is not correct. Check the page size you have set.	Non-supported size of paper for PictBridge Camera Direct printing is selected.	Cancel printing on the digital camera. Check the paper size, then print again.
Failed to scan Photo Index Sheet. Check the orientation, position and marking. <See manual>	The machine failed in scanning the Photo Index Sheet.	Press the OK button to clear the error. Confirm the following, then try again: - Fill in all the circles on the Photo Index Sheet. - Place the sheet in the correct orientation and position.

2-4. Warnings

Warning	Message on the LCD	Solution
Low ink	The following ink is low. Continue? (Icon of each ink tank) Yes No In Camera Direct Printing, only "Yes" can be selected.	- Select **Yes**, and press the OK button. => Printing starts, and it is indicated on the LCD. - Select **No**, and press the OK button. => Printing is cancelled, and the LCD returns to the display immediately before printing was attempted.
Restrictions on paper	The current paper cannot be set. Change the size and type.	Re-select the supported paper type and size.
USB cable not connected	Connect USB cable and turn on the PC.	Connect the USB cable, then turn on the computer.
Cancellation of image select information	Reset the selected photo information? Yes No	When one or more images are selected in Layout print, and if a user tries to display the menu or sub-menu, the message is displayed. - Select **Yes**, and press the OK button. => The image selection is cancelled, and the menu or sub-menu is displayed. - Select **No**, and press the OK button. => The LCD returns to the display immediately before the message was displayed.

2-5. Troubleshooting by Symptom

	Symptom	Solution

Faulty operation	The power does not turn on.
	The power turns off immediately after power-on.
		- Confirm the connection of
		  - the power cord, and
		  - between the logic board and the power supply unit.
		- Replace the
		  - power supply unit, or
		  - logic board.

	A strange noise occurs.	- Remove foreign material. - Attach a removed part if any. - Check the operation of the moving parts (such as purge unit, carriage unit, and paper feeding mechanism) - Replace a faulty part, if any.

	Nothing is displayed on the LCD.	- Confirm the connection between the operation panel, the LCD unit, and the logic board.
		- Replace the
		  - LCD unit, or
		  - logic board.

	A portion of the LCD is not displayed.	- Perform the button and LCD test in the service mode, and confirm that the LCD is displayed without any segments missing.
		- Confirm the connection between the operation panel, the scanning unit, and the logic board.
		- Replace the
		  - LCD unit, or
		  - logic board.

	Paper feed problems (multi-feeding, skewed feeding, no feeding).	- Examine the inside to confirm that no parts are damaged, and the rollers are clean.
		- Remove foreign material.
		- Adjust the paper guide properly.
		- Re-set the paper.
		- Confirm the selected paper source.
		- Confirm that the rear cover fits in place properly (for paper feeding from the front feeder).
		- Confirm the connection of each harness and the logic board.
		- Replace the
		  - sheet feeder unit,
		  - ASF cover unit,
		  - bottom case unit (for paper feeding from the front feeder), or
		  - logic board.

	Carriage movement problems (contact to other parts, strange noise).	- Confirm that the carriage timing slit strip film is free from damage or grease.
		- Clean the carriage timing slit strip film (with ethanol and lint-free paper).
		- Remove foreign material.
		- Replace the
		  - carriage timing slit strip film, or
		  - carriage unit.

	Faulty scanning (no scanning, strange noise).	- Confirm the connection between the scanning unit and the logic board.
		- Replace the
		  - scanning unit, or
		  - logic board.

Unsatisfactory print quality	No printing, or no color ejected.	- Confirm that the ink tanks are installed properly. - Perform print head maintenance. - Replace the - ink tank,

			- print head[*1].
			- Remove foreign material from the purge unit caps, if any.

			- Replace the
			  - purge unit, or
			  - logic board.

		Printing is faint, or white lines appear on printouts even after print head cleaning. Line(s) not included in the print data appears on printouts.	- Remove and re-install the print head.
			- Confirm that the ink tanks are installed properly.
			- Perform print head maintenance.
			- Replace the
			  - ink tank,
			  - print head[*1],
			  - purge unit, or
			  - logic board.

		Paper gets smeared.	- Feed several sheets of paper. - Perform bottom plate cleaning. - Clean the paper path with cotton swab or cloth. - Clean the front feeder paper feed rollers.

		A part of a line is missing on printouts.	- Replace the
			  - ink tank, or
			  - print head[*1].

		Color hue is incorrect.	- Confirm that the ink tanks are installed properly.
			- Perform print head maintenance.
			- Replace the
			  - ink tank, or
			  - print head[*1].
			- Perform print head alignment.

		Printing is incorrect.	Replace the logic board.

		No ejection of black ink.	- Confirm that the ink tanks are installed properly.
			- Perform print head maintenance.
			- Replace the
			  - ink tank, or
			  - print head[*1].
			- Remove foreign material from the purge unit caps, if any.
			- Replace the purge unit.

		Graphic or text is enlarged on printouts.	**When enlarged in the carriage movement direction:**
			- Clean grease or oil off the timing slit strip film.
			- Replace the
			  - timing slit strip film,
			  - carriage unit, or
			  - logic board.
			When enlarged in the paper feed direction:
			- Clean grease or oil off the timing slit disk film.
			- Replace the
			  - timing slit disk film,
			  - timing sensor unit,
			  - LF roller, or
			  - logic board.

	Faulty scanning	No scanning.	- Confirm the connection between the scanning unit and the logic board.
			- Replace the
			  - scanning unit, or
			  - logic board.

		Streaks or smears on the scanned image.	- Clean the platen glass. - Confirm the connection between the scanning unit and the logic board.

			- Replace the
			- scanning unit,
			- logic board, or
			- document pressure sheet.

*1: Replace the print head only after the print head deep cleaning is performed 2 times, and when the problem persists.

← <Part 1: 2. LIST OF ERROR DISPLAY / INDICATION> →

3. REPAIR

3-1. Notes on Service Part Replacement (and Disassembling / Reassembling)

Service part	Notes on replacement[*1]	Adjustment / settings	Operation check
Logic board ass'y QM2-3827	- Before removal of the logic board ass'y, remove the power cord, and allow for approx. 1 minute (for discharge of capacitor's accumulated charges), to prevent damages to the logic board ass'y. - Before replacement, check the ink absorber counter value (by service test print or EEPROM information print). [See 3-4. Verification Items, (1) Service test print, or (2) EEPROM information print, for details.]	**After replacement:** 1. Initialize the EEPROM. 2. Set the destination in the EEPROM. 3. Set the ink absorber counter value. 4. Set the language to be displayed on the LCD. [See 3-3. Adjustment / Settings, (9) Service mode, for details of 1 to 4] 5. Perform the print head alignment in the user mode.	- EEPROM information print - Service test print - Printing via USB connection - Copy - Direct printing from a digital camera
Absorber kit QY5-0178		**After replacement:** 1. Reset the ink absorber counter. [See 3.3. Adjustment / Settings, (9) Service mode.]	- Service test print - EEPROM information print
Carriage unit QM2-3753	- The screws securing the carriage rail are allowed to be loosened only at carriage replacement. Before removing the screws, mark the positions of the screws on the carriage rail so that they will be returned to their original positions after the carriage is replaced.	**At replacement:** 1. Apply grease to the sliding portions. [See 3-3. Adjustment / Settings, (5) Grease application.] **After replacement:** 1. Adjust the distance between the print head and the paper (between the carriage rail and the platen). [See 3.3. Adjustment / Settings, (2) Carriage rail adjustment.] 2. Check the ink system function. [See 3.3. Adjustment / Settings, (9) Service mode.] 3. Perform the print head alignment in the user mode.	- Service test print (Confirm ink system function.) - Printing on thick paper
Paper feed motor QM2-3873	- The screws securing the paper feed motor are allowed to be loosened. (DO NOT loosen any other red screws.)	**At replacement:** 1. Adjust the paper feed motor. [See 3-3. Adjustment / Settings, (1) Paper feed motor adjustment.]	
Spur base unit QM2-3750		**After replacement:** 1. Check the ink system function. [See 3.3. Adjustment / Settings, (9) Service mode.]	- Service test print
Document pressure plate ass'y QM2-3756, Document pressure sheet QC1-9514, Scanner unit QM2-3775		**At replacement:** 1. Adjust the document pressure sheet position. [See 3.3. Adjustment / Settings, (2) Carriage rail adjustment.]	
Timing slit strip film QC1-9542 Timing slit disk film	- Upon contact with the film, wipe the film with ethanol. - Confirm no grease is on the film. (Wipe off any grease thoroughly with ethanol.)	**After replacement:** 1. Perform the print head alignment in the user mode.	- Service test print

QC1-9597	- Do not bend the film.		
Print head QY6-0070		**After replacement:** 1. Perform the print head alignment in the user mode.	- Service test print

*1: General notes:

- Make sure that the flexible cables and wires in the harness are in the proper position and connected correctly.

  See 3-2. Special Notes on Repair Servicing, or Parts Catalog, for details.

- Do not drop the ferrite core, which may cause damage.

- Protect electrical parts from damage due to static electricity.

- Before removing a unit, after removing the power cord, allow the machine to sit for approx. 1 minute (for capacitor discharging to protect the logic board ass'y from damages).

- Do not touch the timing slit strip film and timing slit disk film. No grease or abrasion is allowed.

- Protect the units from soiled with ink.

- Protect the housing from scratches.

- Exercise caution with the red screws, as follows:

   i. The screws of the paper feed motor may be loosened only at replacement of the paper feed motor unit (DO NOT loosen them in other cases).

   ii. The screws securing the carriage rail may be loosened only at replacement of the carriage unit. After carriage unit replacement, print on thick paper to confirm that the distance between the print head and paper (between the carriage rail and the platen) is correct, and that the print head does not contact the paper during printing. If the print head contacts the paper, adjust the carriage rail position, while referring to [3-3. Adjustment / Settings, (2) Carriage rail adjustment.]

3-2. Special Notes on Repair Servicing

(1) Side cover L2 and front cover L removal

    i) Remove 1 screw from the front cover L.

ii) While pushing the lock pin, slide the front cover L to the right to remove it.

iii) Release the hook of the right front of the side cover L2, while pulling the cover downward.

    iv) Slide the side cover L2 toward the machine front, and remove it.

(2) Side cover R2 and front cover R removal

i) Release the hook of the side cover R2.

ii) Slide the side cover R2 toward the machine front, and remove it.

iii) Remove 1 screw from the front cover R.

iv) Remove 2 hooks (No. 1 in the photo below). While pressing the lock pin (No. 2 in the photo below), slide the front cover R toward the machine front, and remove it.

1-15

(3) Main case removal

i) Remove the front covers L / R, side covers R1 / R2 / L1 / L2, and scanner unit.

ii) Release 2 bosses, and remove the ASF cover unit.

iii) Remove 4 screws and the main case.

(4) Scanner flexible cable attachment

  i) On the double-sided adhesive tape in the right back of the top of the main case, attach the flexible cable.

      The cores should be located as follows:

      - Place the core (No. 2 in the photo below) so that the rib (No. 1 in the photo below) is between the core edges (between the blue lines in the photo).
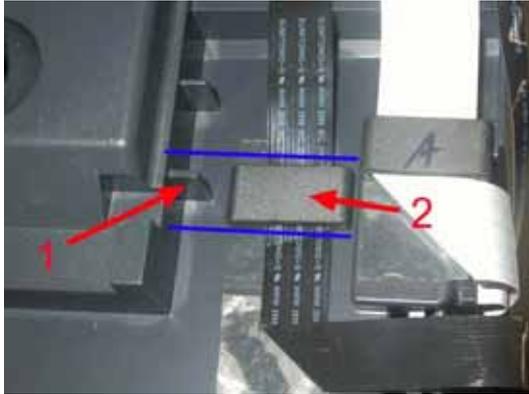
      - Align another core (indicated by the red arrow in the photo below) to the main case protrusion edges (blue lines in the photo below).
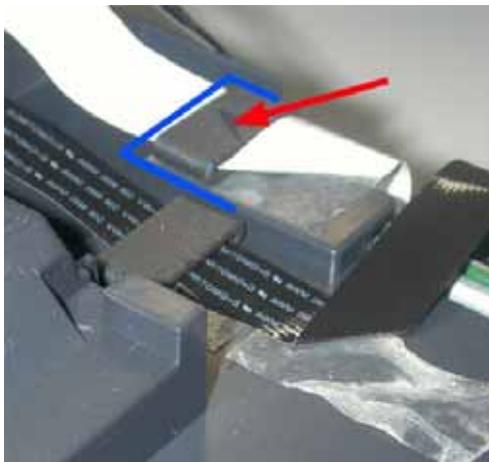
  ii) Attach the FFC sheet, with its right back portion passing under the flexible cable, as shown below (blue circle).
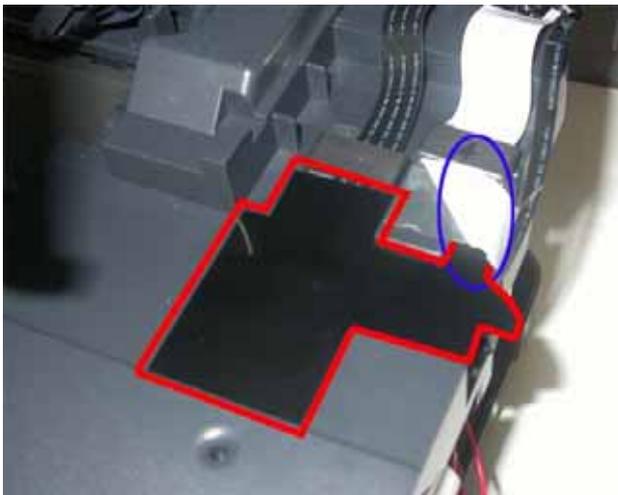
  iii) Connect the flexible cable connectors at 3 locations (indicated by the red arrows), while passing the cable through the main case frame as shown below (blue circle).
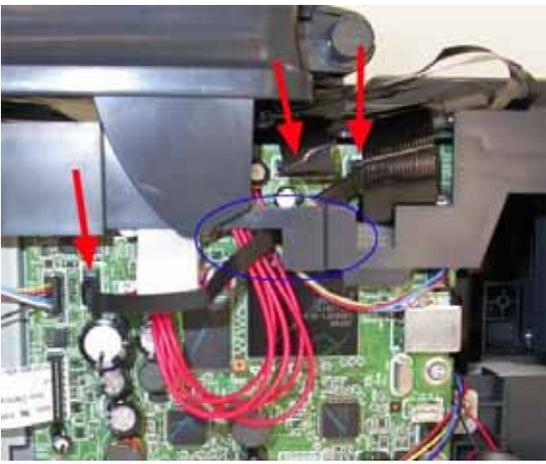
(5) Timing sensor unit cable wiring

i) Fit the cables in the flexible cable guide, and attach them to the main chassis with filament tape at 2 locations, as shown below (blue circles).
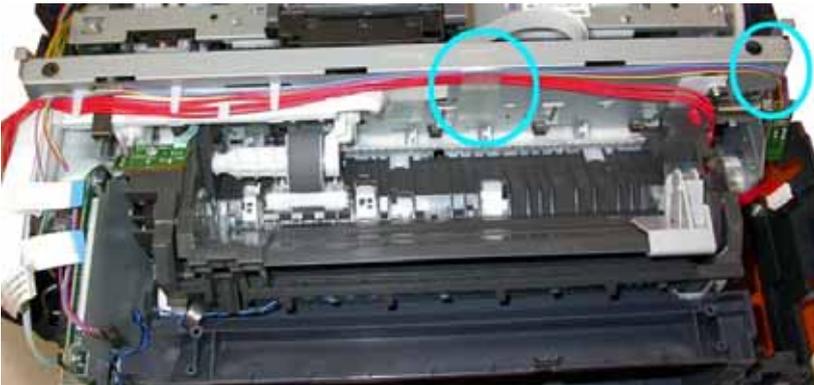
ii) Pass the timing sensor unit cables (No. 2 in the photo below) through under the cable between the main board and the ASF_PE sensor board (No. 1 in the photo below).
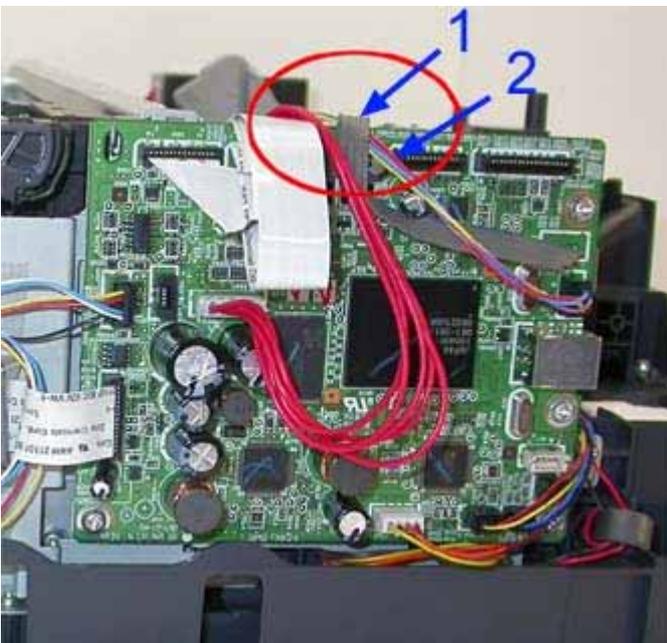
(6) Flexible cable between the card board ass'y and the logic board ass'y

    i) Attach the core to the cable.

    ii) Fix the core with filament tape, as shown in the photo below.

(7) Carriage unit flexible cable wiring

    i) Attach the core to a set of carriage unit cables (3 cables).

    ii) Fit the cables in the FCC guide so that the core comes to the location indicated by the red arrow in the photo below.

    iii) Attach the cables to the main chassis with filament tape, as shown in the photo below (blue circle).

(8) Power supply unit cable wiring

    i) Pass the cables through the core 3 times so that they loop around the core.

    ii) Fit the cables in the FCC guide.

    iii) Using filament tape, attach the cables (together with the timing sensor ass'y cables) to the main chassis , as shown in the photo below (blue circle).
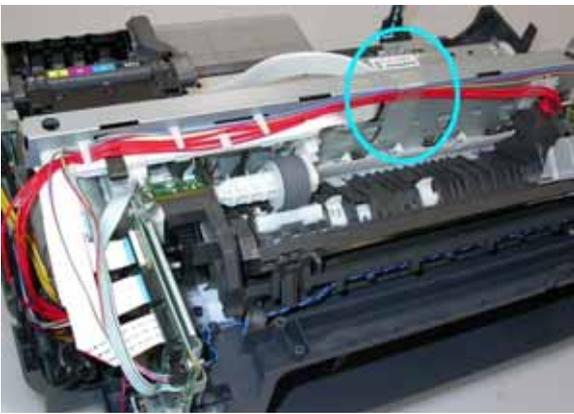
(9) Ink tube installation

\<About Circle 1 in the photo\>
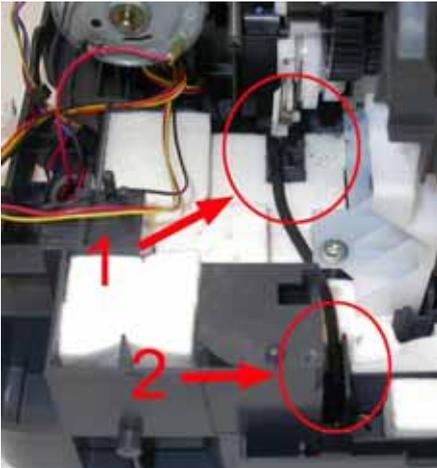
Fit the tube between the ribs.

\<About Circle 2 in the photo\>
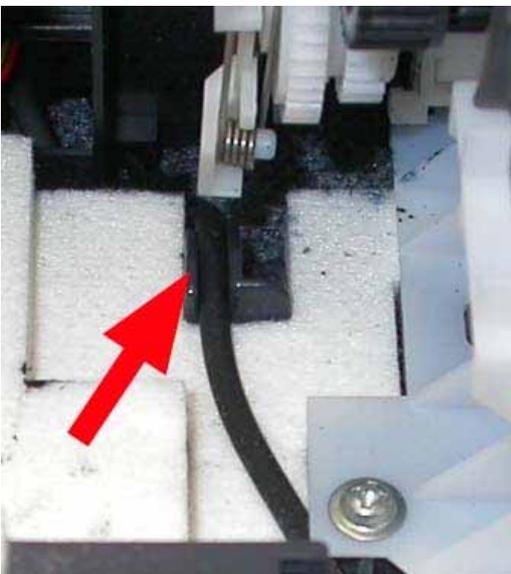
Fit the tube between the ribs, and adjust the tube so that the tube end (indicated by the blue circle in the photo) is between the edges of the right and left ribs (between the red lines in the photo).
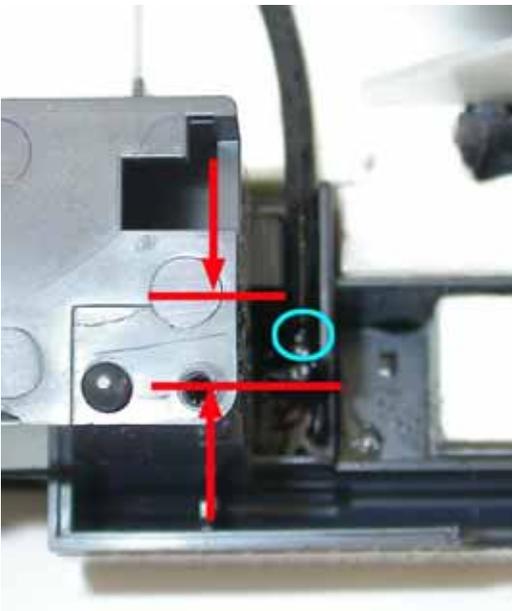
(10) Platen link assembly

Assemble the platen link so that the paper thickness lever boss is in the platen link hole, as shown in the photo.
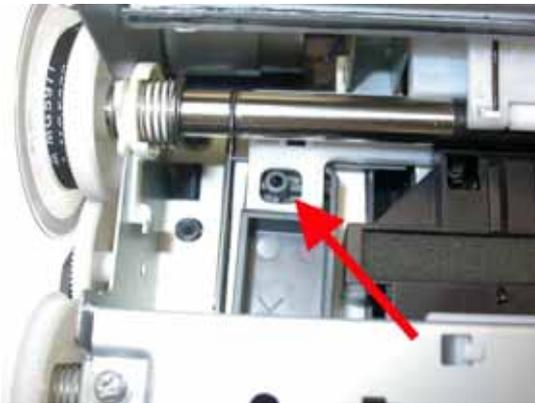
(11) Emblem removal

Push the point indicated by the arrow in the photo to remove from the double-sided adhesive tape.

3-3. Adjustment / Settings

(1) Paper feed motor adjustment

Perform the following adjustments when the paper feed motor unit is replaced:

1) When attaching the motor, fasten the screws so that the belt is properly stretched (in the direction indicated by the blue arrow in the figure below).

2) After replacement, be sure to perform the service test print, and confirm that no strange noise or faulty print operation (due to dislocation of the belt or gear, or out-of-phase motor, etc.) occurs.
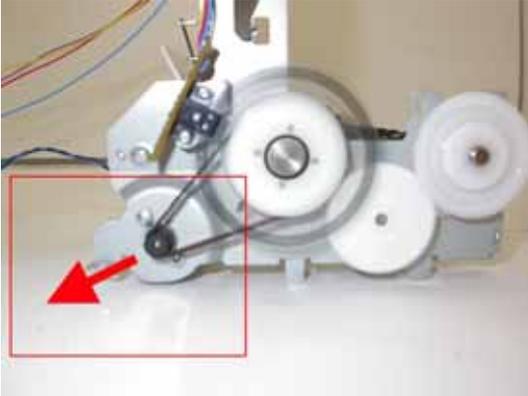
Note: The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit. DO NOT loosen them in other cases.

(2) Carriage rail adjustment

Perform the following adjustments when attaching the carriage rail:

1) Before loosening the screws, mark the following positions on the rail:

- Left side: Mark the boss position.

- Right side: Mark the hole position.

2) In attaching the carriage rail, make sure that the left boss and right hole fit to the marks made in step 1) respectively, then fasten the screws.

3) Be sure to perform the confirmation test detailed below; confirm that the print quality is proper and the print head is not contacting the paper.

\<Confirmation test\>

Using Photo Paper Pro, and with the paper thickness lever set to the left position (normal position), print an image and confirm that the print quality is proper, and the print head is free from contacting the paper.

If the print quality is not proper, or the print head contacts the paper, adjust the head-to-paper distance in the following procedures:

<How to adjust the head-to-paper distance>

i) Mark the current position of the left boss and the right hole. (See the step 1 of the carriage rail adjustment above.)

ii) Loosen the hexagon-head screws, and adjust the head-to-paper distance.

- To prevent the print head from contacting the paper: Raise the carriage rail from the current position.

- To improve the print quality: Lower the carriage rail from the current position.

(3) Document pressure sheet adjustment

Adjust the document pressure sheet as follows:

1) Peel off the cover sheet from the double-sided adhesive tape of the document pressure sheet, and position one of the corners of the sheet at the scanning reference point (back left) on the platen glass.

2) Slowly close the document pressure plate ass'y. The document pressure sheet will attach to the document pressure plate ass'y.

3) Open the document cover to confirm the following:

- No extension of the sponge edges over the mold part of the document cover.

- No gap between the platen glass reference edges and the corresponding sponge edges.

(4) Front feeder paper feed roller cleaning

1) Press the ON/OFF button to turn off the machine.

2) Set 5 sheets or more of A4 or letter size plain paper in the front feeder.

3) Push the rear cover tab to the right and pull out the rear cover.
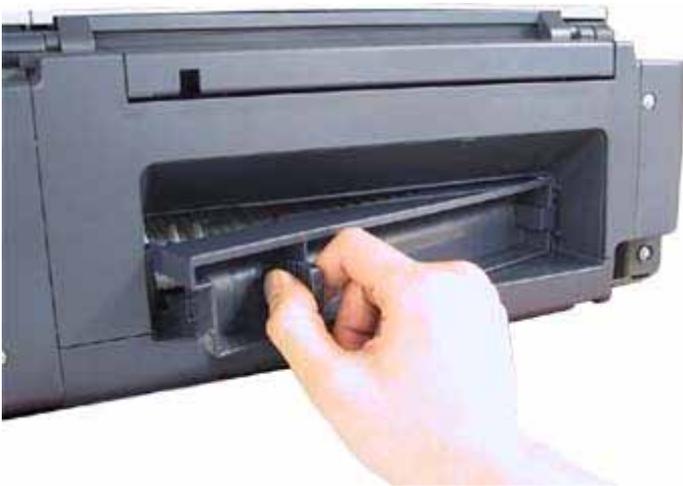
Caution: Be cautious not to touch the collars (indicated by the red circles in the photo below) of the front feeder guide. They can easily be removed when contacted.
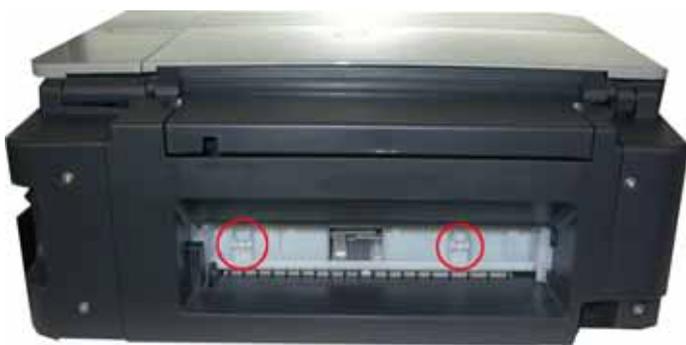
4) While rotating the paper feed roller toward you using your finger, wipe off smears with a cotton swab. If a smear or stain is not removed easily, moisten the swab and clean the roller.
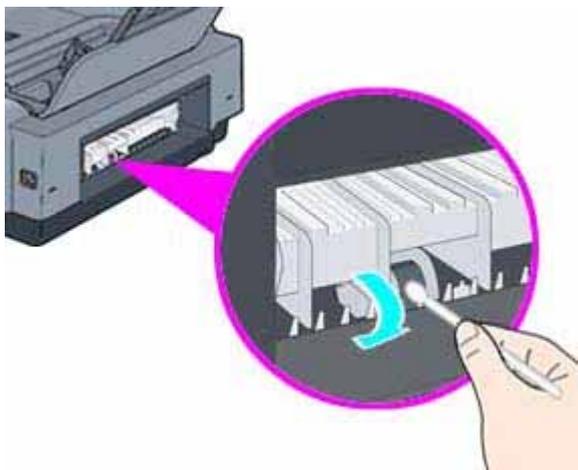
5) When cleaning is completed, remove the paper from the front feeder, and re-set it.
6) Attach the rear cover.

   Caution: Make sure the rear cover fits in place. Improper attachment of the cover will cause paper jams.

(5) Grease application

● Machine unit

No	Part name		Where to apply grease/ oil	Grease/ oil name	Grease/ oil amount (mg)	Number of locations to apply grease/ oil
1	Chassis ass'y	(1)	Behind the top front of the chassis where the carriage unit slides	Floil KG107A	240 +/- 20	1
2	Carriage rail	(2)	Top surface of the carriage rail where the carriage unit slides	Floil KG107A	475 +/- 25	1
3	Carriage rail	(3)	Front surface of the carriage rail where the carriage unit slides	Floil KG107A	240 +/- 20	1
4	Carriage rail	(4)	Back of the carriage rail where the carriage unit slides	Floil KG107A	250 +/- 50	1
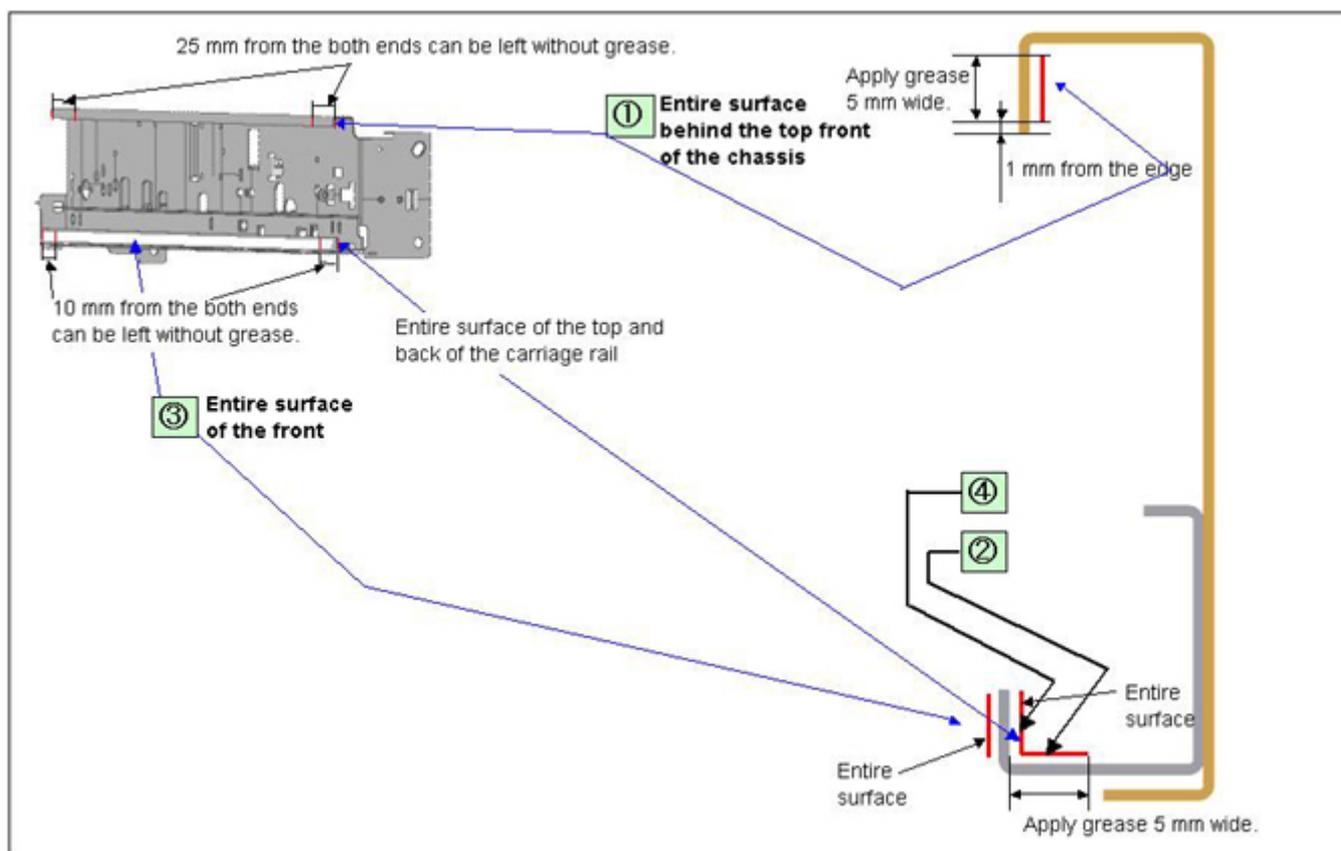
- Platen

No	Part name		Where to apply grease/ oil	Grease/ oil name	Grease/ oil amount (mg)	Number of drops*	Number of locations to apply grease/ oil
5	Platen	(5)	Eject roller sliding portion	Floil KG107A	4.5 to 9	1/2	3

*1 drop = 9 to 18 mg

- LF roller

No	Part name		Where to apply grease/ oil	Grease/ oil name	Grease/ oil amount (mg)	Number of drops*	Number of locations to apply grease/ oil
6	LF roller	(6)	LF earth spring sliding portion	IF-20	9 to 18	1/2	1

*1 drop = 9 to 18 mg
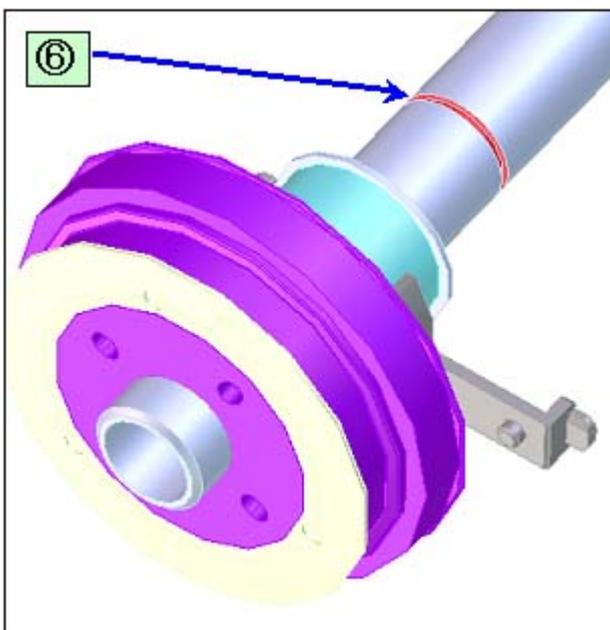
(6) Ink absorber replacement

1) At the time of an error indicating that the ink absorber is full, replace either the main or the borderless-print ink absorber according to the error message.

   - When the main ink absorber is full:

     Replace the absorber indicated by the blue frame in the photo below (component of QY5-0178).

   - When the borderless-print ink absorber is full:

     Replace 2 absorbers in the red circle in the photo below and the platen ink absorber (components of QY5-0178).
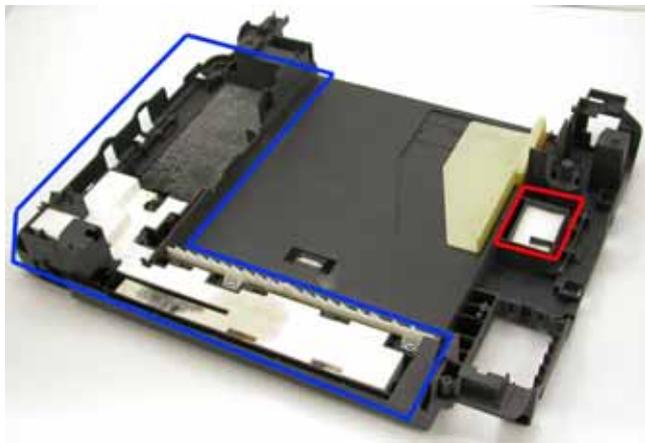
The main ink absorber and the borderless-print ink absorber have separate counters respectively. After ink absorber replacement, reset the applicable ink absorber counter according to the replaced ink absorber. For details, see (7) Ink absorber counter setting.

2) Partial replacement of the main ink absorber

   For the main ink absorber, the following replacement methods are available:

Replacement method	Difficulties	Ink absorber volume to be replaced	Print yield after replacement
Partial replacement	Low	Approx. a half portion of the entire main ink absorber	Approx. 4,800 pages
Whole replacement	High	The entire main ink absorber	Approx. 12,000 pages

After ink absorber replacement, set the ink absorber counter value according to the replacement method. See (7) Ink absorber counter setting, for details.

<How to perform the partial replacement>

Remove the rear cover (No. 1 in the photo) and the ink absorber cover (No. 2 in the photo) from the rear side of the machine, and replace a half portion of the main ink absorber (No. 3 in the photo).

(Time required: Approx. 4 min. including the operation check after replacement)

<The portion replaced in the partial replacement>
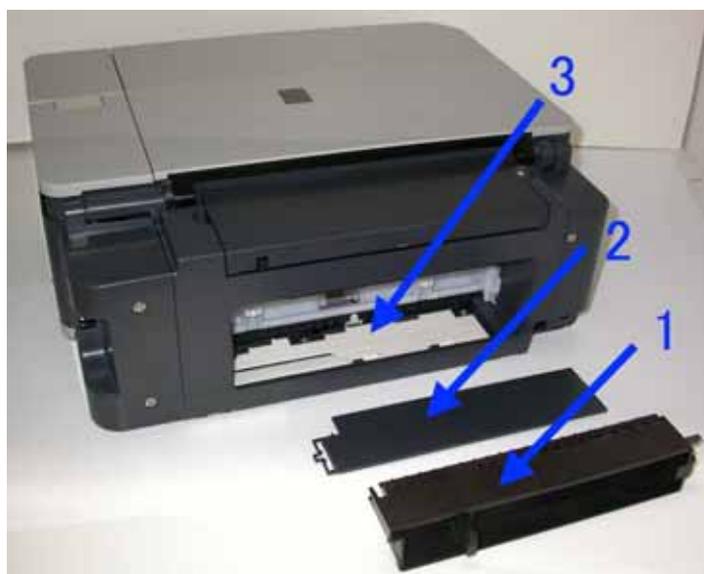
- Entire main ink absorber: Indicated by the green lines

- The portion to be replaced in partial replacement: Indicated by the blue lines
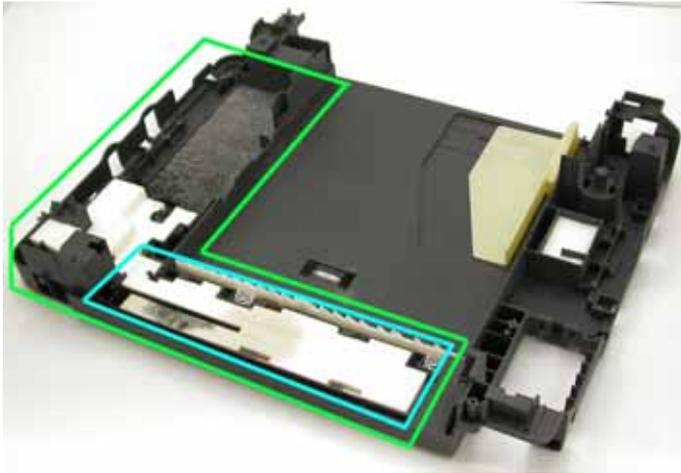
(7) Ink absorber counter setting

Before replacement of the logic board ass'y, check the ink absorber counter value. After the logic board ass'y is replaced, set the ink absorber counter value to the replaced logic board ass'y.

In addition, according to the counter value, replace the ink absorber (ink absorber kit). When the ink absorber is replaced, reset the applicable ink absorber counter (to "0%").

How to check the ink absorber counter value:

See 3-4. Verification Items, (1) Service test print, or (2) EEPROM information print.

How to set the ink absorber counter:

See 3-3. Adjustment / Settings, (9) Service mode, "Ink absorber counter setting procedures."

(8) User mode

Function	Procedures	Remarks
Print head manual cleaning	- Cleaning both Black and Color: 　　Perform via the machine operation panel. - Cleaning Black or Color separately, or both Black and Color: 　　Perform from the MP driver Maintenance tab.	
Print head deep cleaning	Perform via the machine operation panel, or from the MP driver Maintenance tab.	
ASF paper feed roller cleaning	Perform via the machine operation panel.	
Front feeder paper feed roller cleaning	Clean the rollers manually.	
Nozzle check pattern printing	Perform via the machine operation panel, or from the MP driver Maintenance tab.	Set a sheet of plain paper (A4 or Letter) in the ASF or the front feeder which is selected on the Paper Feed Switch button.
Manual print head alignment	Perform via the machine operation panel, or from the MP driver Maintenance tab.	Set 2 sheets of plain paper (A4 or Letter) in the ASF or the front feeder which is selected on the Paper Feed Switch button.
Automatic print head alignment	Perform via the machine operation panel.	Print head alignment using the first page of Print Head Alignment Sheet. Set a sheet of plain paper (A4 or Letter) in the ASF or in the front feeder which is selected by the Paper Feed Switch button. If the automatic print head alignment is not effective, perform the manual print head alignment.
Bottom plate cleaning	Perform via the machine operation panel, or from the MP driver Maintenance tab.	Cleaning of the platen ribs when the back side of paper gets smeared. Fold a sheet of plain paper (A4 or Letter) in half crosswise, then unfold and set it in the ASF with the folded ridge facing down.

(9) Service mode

Function	Procedures	Remarks
Service test print - Model name - Destination - ROM version - USB serial number - Ink absorber counter value (ink amount in the ink absorber) - Ink system function check result	See "Service mode operation procedures" below.	Set a sheet of A4 or letter size paper. For print sample, see 3-4. Verification Items, (1) Service test print, <Service test print sample>.
EEPROM information print - Model name - Destination - ROM version - Ink absorber counter value (ink amount in the ink absorber) - Print information - Error information, etc.	See "Service mode operation procedures" below.	Set a sheet of A4 or letter size paper.
EEPROM initialization	See "Service mode operation procedures" below.	The following items are NOT initialized, and the shipment arrival flag is not on: - USB serial number - Destination settings - Ink absorber counter value (ink amount in the ink absorber)
Ink absorber counter reset	See "Service mode operation procedures" below.	
Destination settings	See "Service mode operation procedures" below.	
Button and LCD test	See "Service mode operation procedures" below.	
Ink absorber counter setting	See "Service mode operation procedures" below.	

<Service mode operation procedures>

1) With the machine power turned off, while pressing the Stop/Reset button, press and hold the ON/OFF button. (DO NOT release the buttons). The Power LED lights in green to indicate that a function is selectable.

2) While holding the ON/OFF button, release the Stop/Reset button. (DO NOT release the ON/OFF button.)

3) While holding the ON/OFF button, press the Stop/Reset button 2 times, and then release both the ON/OFF and Stop/Reset buttons. (Each time the Stop/Reset button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green, starting with Alarm LED.)

4) When the Power LED lights in green (and "CANON Idle" is displayed on the LCD), press the Stop/Reset button the specified number of time(s) according to the function listed in the table below, then press the ON/OFF button. (Each time the Stop/Reset button is pressed, the Alarm and Power LEDs light alternately, Alarm in orange and Power in green, starting with Alarm LED.)

Time(s)	LED indication	Function	Remarks
0 times	Green (Power)	Power off	When the print head is not installed, the carriage returns and locks in the home position capped.
1 time	Orange (Alarm)	Service test print	See 3-4. Verification Items, (1) Service test print.
2 times	Green (Power)	EEPROM information print	See 3-4. Verification Items, (2) EEPROM information print.
3 times	Orange (Alarm)	EEPROM initialization	
4 times	Green (Power)	Ink absorber counter resetting	See "Ink absorber counter resetting procedures" below.
5 times	Orange (Alarm)	Destination settings	Press the Stop/Reset button the specified number of time(s) according to the destination.

			See "Destination settings procedures" below.
6 times	Green (Power)	Print head deep cleaning	Cleaning of both Black and Color
7 to 9 times	Orange at odd numbers (Alarm) / Green at even numbers (Power)	Return to the menu selection	
10 times	Green (Power)	Eject roller correction	Not used in servicing.
11 times	Orange (Alarm)	Return to the menu selection	
12 times	Green (Power)	Button and LCD test	See "Button and LCD test procedures" below.
13 times	Orange (Alarm)	Ink absorber counter setting	See "Ink absorber counter setting procedures" below.
14 times or more	Green (Power)	Return to the menu selection	

Note: - If the Stop/Reset button is pressed 14 or more times, the Alarm LED (orange) or Power LED (green) lights steadily without any changes.

<Destination settings procedures>

In the destination settings mode, press the Stop/Reset button the specified number of time(s) according to the destination listed in the table below, and press the ON/OFF button.

Time(s)	LED indication	Destination
0 times	Green (Power)	No change of the destination
1 time	Orange (Alarm)	Japan
2 times	Green (Power)	Korea
3 times	Orange (Alarm)	US
4 times	Green (Power)	Europe
5 times	Orange (Alarm)	Australia
6 times	Green (Power)	Asia
7 times	Orange (Alarm)	China
8 times	Green (Power)	Taiwan
9 times or more	Orange (Alarm)	Return to the menu selection

Note: Confirm the model name and destination in service test print or EEPROM information print.

<Ink absorber counter resetting procedures>

After replacement of the ink absorber, reset the applicable ink absorber counter.

1) Before replacement of the ink absorber, check the ink absorber counter value in EEPROM information print. See 3-4. Verification Items, (2) EEPROM information print.

2) In the ink absorber counter resetting mode, press the Stop/Reset button the specified number of time(s) according to the replaced ink absorber to set its counter to 0%, or 60% (for partial replacement).

Time(s)	Replaced ink absorber	Counter value
0 times	Main ink absorber	Reset to 0%
1 time	Borderless-print ink absorber	Reset to 0%
2 times	Both the main and borderless-print ink absorbers	Reset to 0%
3 times	A half portion of the main ink absorber (partial replacement)	Set to 60%

<Ink absorber counter setting procedures>

Set the ink absorber counter data to a replaced new EEPROM after the logic board is replaced in servicing.

1) Before replacement of the logic board ass'y, check the ink absorber counter value in EEPROM information print. See 3-4. Verification Items, (2) EEPROM information print.

2) In the ink absorber counter setting mode, press the Stop/Reset button the specified number of time(s) according to the ink absorber whose counter value should be transferred to the replaced new EEPROM.

Time(s)	Ink absorber	Remarks
0 times	Main ink absorber	
1 time	Borderless-print ink absorber	
2 times	Both the main and borderless-print ink absorbers	
3 times or more	Not valid	Press the ON/OFF button to return to the ink absorber counter setting m

3) Press the ON/OFF button to proceed to the next step.

4) The ink absorber counter value can be set in 10% increments by pressing the Stop/Reset button. Press the Stop/Reset button the appropriate number of time(s) to select the value which is closest to the actual counter value (which was checked in step 1) above.

Time(s)	Ink absorber counter value to be set (%)
0 times	0%
1 time	10%
2 times	20%
3 times	30%
4 times	40%
5 times	50%
6 times	60%
7 times	70%
8 times	80%
9 times	90%
10 times or more	Not valid. Press the ON/OFF button to return to the ink absorber counter setting mode.

5) Press the ON/OFF button to set the selected value to the EEPROM. Print EEPROM information to confirm that the value is properly set to the EEPROM.

<Button and LCD test procedures>

Confirm the operation after replacement of the operation panel unit or LCD unit.

1) In the button and LCD test mode, press the Stop/Reset button. The LCD turns blue, waiting for a button to be pressed.

2) Press each button of the operation panel.

   The LCD is divided into segments, representing each button. The color of a segment corresponding to the pressed button changes to red.

   When all the buttons are pressed, the entire LCD changes to a full red screen.

   The buttons to be pressed are:
   - Paper Feed Switch button
   - COPY button
   - SCAN button
   - MEMORY CARD button
   - Menu button
   - Back button
   - Photo Index Sheet button
   - Settings button
   - OK button
   - Black button
   - Color button
   - Up / down / left / right cursor buttons

3) Open the scanning unit (printer cover) to display the color pattern.

4) Press the ON/OFF button to complete the button and LCD test, and return to the service mode menu selection.

3-4. Verification Items

(1) Service test print

<EEPROM information contents>

On the service test print (sample below), confirm the EEPROM information as shown below. (The information is printed in the top and middle areas of the printout.)

- Top area:

MP510: Model name

M = x.xx: ROM version

D = xxx.x: Main ink absorber counter value (%)

USB (xxxxxx): USB serial number

- Below the solid print patterns in each color:

JPN: Destination

- Middle area:

FA = xx xx xx, Temp: Reserved for plant use

AB (C = OK M = ...): Ink system function check result

<Print check items>

On the service test print (sample below), confirm the following items:

- Check 1, top of form accuracy: The lines shall not extend off the paper.

- Check 2, EEPROM information

- Check 3, nozzle check pattern: Ink shall be ejected from all nozzles.

- Check 4, check pattern for uneven printing due to carriage movement or line feeding (standard mode): There shall be no remarkable unevenness.

- Check 5, check pattern for uneven printing due to carriage movement or line feeding (highest print quality mode): There shall be no remarkable unevenness.

- Check 6, automatic print head alignment sensor correction: The results shall be OK.

<Service test print sample>

MP510 M=V1.00 C=V0.00 D=003.2 USB(000000)
LEDTIME=0000 0000 0000 SELF(H=000 000 000 L=000 000 000)

FA=01 -00-80- Temp.=051
AB(C=OK (C:36F,M:02E) M=OK (C:02B,M:370) Y=OK (M:030) PIGBk=OK (36B))

MP510JPN

EJ=*

Check1
Check2
Check3
Check2
Check4
Check6
Check5

1-32
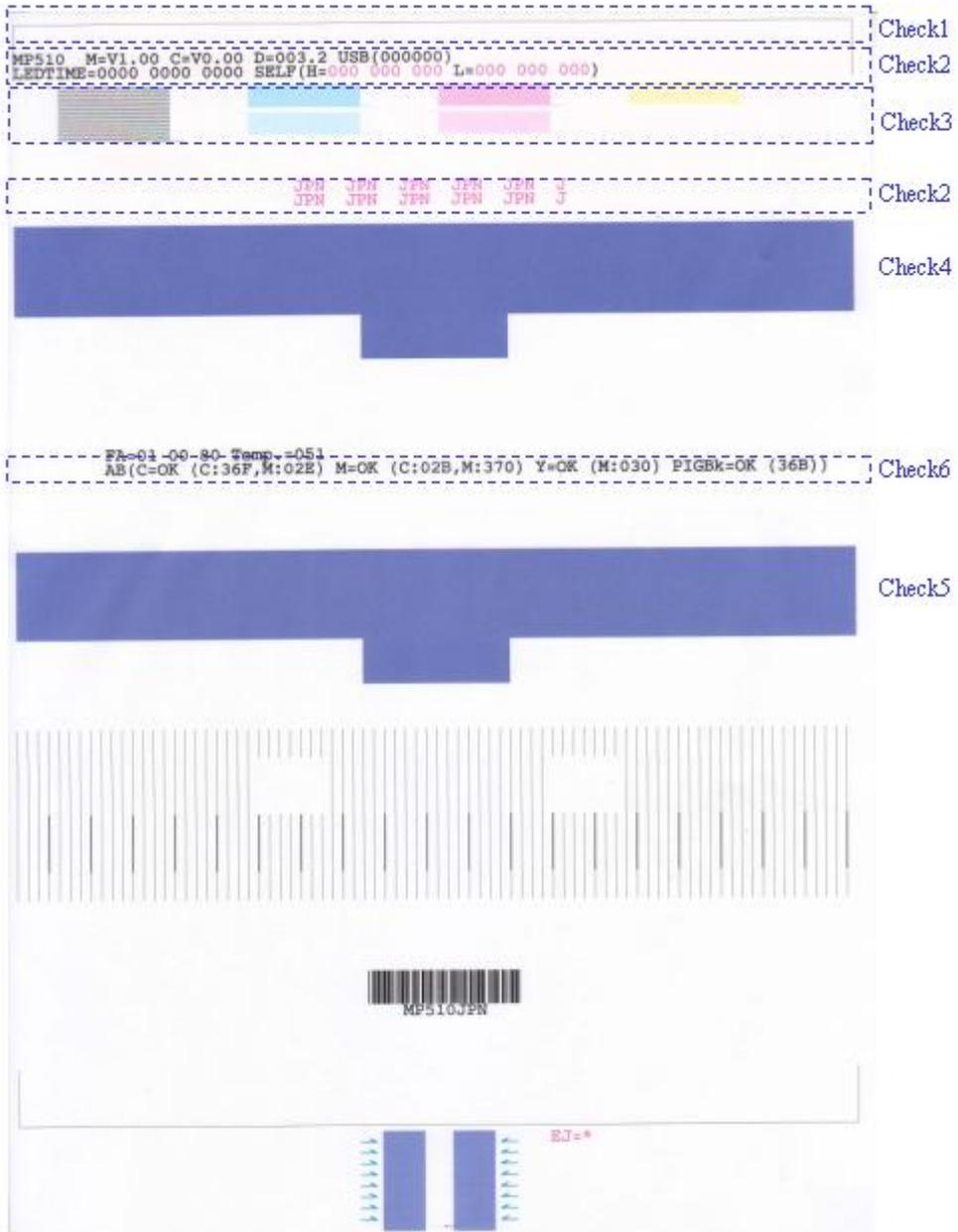
(2) EEPROM information print

<How to read EEPROM information print>

Print sample:

1: MP510 2: JPN 3: V1.01   4: ST=2006/01/28-18:30 5: LPT=2006/05/01-12:09

6: ER(ER0=1300 ER1=5100) 7: P_ON(S=00009) 8: MSD(002)

9: IF(USB1=1) 10: PC(M=002 R=000 T=001 D=009 C=000)

11: D=020.1 Ps=001.0

12: TPAGE(TTL=00162 COPY=00000)

13：CLT(006/01/28-18:38)

14: CH=00002   15: CT(BK=012 M=001 C=001 Y=013)

16: IS(PBK=2 BK=0 Y=2 M=0 C=0)

17: M_REG=0 A_REG=1

18: CDIN(PB=000 OPB=000)   19：BTIN=1

20: PAGE(All=00142 PP=00140 HR+MP=00000 PR+SP+SG=00002 GP=00000 PC=00000 EV=00000)

21: UCPAGE(All=00020)

22: CDPAGE(All=00000)

23: EDGE=00009 24: L=00008 25:BTPAGE=00000   26:EJ=1

27: INK_OFF(BK=0 M=0 C=1 Y=1)

28:Head TempBK=28.0 29:Head TempC=26.5 30:Env Temp=24.0

<Direct>

31: LG=01 Japanese   32: CDI=007   33: CDP=002

34: CDD-PR(L=000 2L=000 PC=000 A4=000)

35: CDD-SP(L=000 2L=000 PC=000 A4=000)

36: CDD-MP(L=000 2L=000 PC=000 A4=000)

37: DCD-PP(L=000 2L=000 PC=000 A4=000)

38: DCD-FPP(L=000 2L=000 PC=000 A4=000)

39: DCD-MPP(L=000 2L=000 PC=000 A4=000)

40:PrnB＝000   41: SC=000   42: Seal=000

<Scanner>

43: SC=00005   44：SCAN_ER(ER0=0000 ER1=0000)

45: SC-dpi(75=00000 150=00000 300=00005 600=00000 1200=00000 2400=00000)

46: SG(GY=00003 CL=00002)

<Copy>

47: MCASF(PP=00000 SP+PR+GP=00000 OTH=00000)

48: CCASF(PP=00000 HR+MP=00000 PR+SP+SG=00000 GP=00000 PC=00000)

Printed items:

1. Model name   2. Destination   3. ROM version   4. Installation date & time   5. Last printing date & time

6. Operator call/service call error record   7. Power-on count (soft)   8. Longest period where printing stops (days)

9. Connected I/F (USB2)   10. Purging count (manual/deep cleaning/timer/dot count/ink tank and print head replacement)

11. Main ink absorber counter value (%), borderless-print ink absorber counter value (%)

12. Total print pages (total, copy pages)

13. Cleaning date & time (BK/CL)

14. Print head replacement count   15. Ink tank replacement count (BK/M/C/Y)

16. Ink status (BK/Y/M/C) => 0 (High) / 1 (Middle) / 2 (Low) / 3 (Empty)

17. Manual print head alignment by user, automatic print head alignment by user

18. Camera Direct Print-supported device connection record (PB = Canon PictBridge-supported camera, OPB = Other PictBridge-supported camera)

19. Bluetooth device connection record

20. ASF feed pages (total, plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard, envelope)

21. Front feeder feed pages (total)

22. Camera Direct print pages (total)

23. Borderless print pages   24. L size and 4x6 print pages   25. Print pages via Bluetooth connection   26. Paper eject roller correction value (not used in servicing)

27. Disabling of the remaining ink amount detection function (BK/M/C/Y)

28. Print head temperature (BK)   29. Print head temperature (CL)   30. Internal temperature

<Direct>

31. Language   32. Memory card use count   33. Total Card Direct print pages

34. Card Direct print pages: Photo Paper Pro (4 x 6, 5 x 7, Japanese post card, A4)

35. Card Direct print pages: Photo Paper Plus Glossy (4 x 6, 5 x 7, Japanese post card, A4)

36. Card Direct print pages: Matte Photo Paper (4 x 6, 5 x 7, Japanese post card, A4)

37. Camera Direct print pages: Photo Paper (4 x 6, 5 x 7, Japanese post card, A4)

38. Camera Direct print pages: Fast Photo Paper (4 x 6, 5 x 7, Japanese post card, A4)

39. Camera Direct print pages: Matte Photo Paper (4 x 6, 5 x 7, Japanese post card, A4)

40. Print Beam print pages   41. Business Card and Credit Card size paper print pages   42. Sticker sheet print pages

<Scanner>

43. Total scan count

44. The last 2 errors (including user errors and copy scan errors. Even if the same errors occur, they are recorded individually.)

45. Scan count by scanning resolution (75, 150, 300, 600, 1200, 2400 dpi)

46. Scan count by scanning gradation (grayscale, color)

<Copy>

47. Monochrome copy pages fed via the ASF (plain paper, Photo Paper Plus Glossy & Photo Paper Pro & Glossy Photo Paper, other)

48. Color copy pages fed via the ASF (plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard)

4. MACHINE TRANSPORTATION

This section describes the procedures for transporting the machine for returning after repair, etc.

1) In the service mode, press the ON/OFF button to finish the mode, and confirm that the paper lifting plate of the sheet feed unit is raised.

2) Keep the print head and ink tanks installed in the carriage.
   See Caution 1 below.

3) Turn off the machine to securely lock the carriage in the home position. (When the machine is turned off, the carriage is automatically locked in place.)
   See Caution 2 below.

4) Tape the following points:

   (1) Paper support: Right and left sides

   (2) Paper output tray: Right and left sides

   (3) Paper thickness lever: Set the lever to the left (for the regular head-to-paper distance), and fix it with tape.
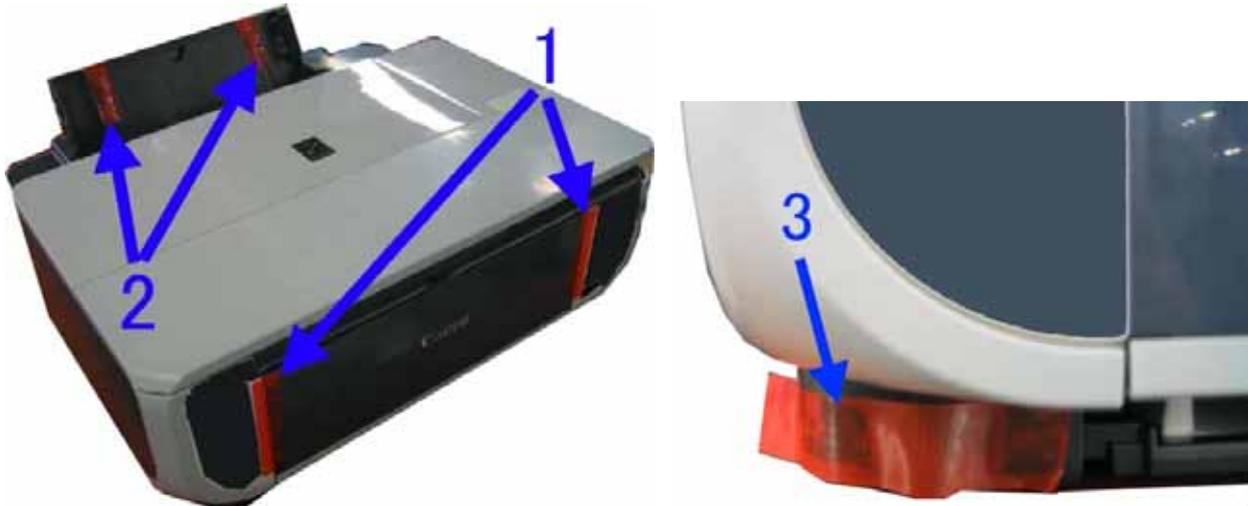
Caution:

(1) If the print head is removed from the machine and left alone by itself, ink (the pigment-based black ink in particular) is likely to dry. For this reason, keep the print head installed in the machine even during transportation.

(2) Securely lock the carriage in the home position, to prevent the carriage from moving and applying stress to the carriage flexible cable, or causing ink leakage, during transportation.

Memo:

If the print head must be removed from the machine and transported alone, attach the protective cap (used when the packing was opened) to the print head (to protect the print head face from damage due to shocks).

Part 2

TECHNICAL REFERENCE

←→

1. NEW TECHNOLOGIES

(1) Paper thickness lever (at the bottom front of the machine)

The head-to-paper distance can be adjusted using the paper thickness lever.

Smearing on printouts due to the print head contacting the paper, etc. may be solved by setting the paper thickness lever to the right (for thick paper, envelope, and T-shirt transfer), regardless of the paper type.

(2) Remaining ink amount detection function

The machine has a function to detect the remaining ink amount.

Detection method: Optical method and dot count

Display method: Displayed on the Status Monitor

    Level 1: Approx. 70% of ink remaining, status display only

    Level 2: Approx. 40% of ink remaining, status display only

    Level 3: Indication of "!" mark, "Ink low" warning

    Level 4: Indication of "X" mark, "No ink" error (ink may have run out)

        By pressing the Stop/Reset button, printing can be continued without replacing the applicable ink tank(s), though printouts may be faint.

    Level 5: Indication of "X" mark, "No ink" error (ink has run out)

        By pressing the Stop/Reset button for 5 seconds or longer, the function to detect the remaining ink amount is disabled, and printing can be continued without replacing the applicable ink tank(s).

        After this operation, it is recorded in the EEPROM that the function to detect the remaining ink amount was disabled.

        Printing with an empty ink tank will cause a problem. Promptly replace the applicable ink tank(s).

(3) Two-way paper feeding

Paper can be fed either from the auto sheet feeder or from the front feeder.

The auto sheet feeder is selected at default.

- Auto sheet feeder: All the supported types and sizes of paper can be fed.
- Front feeder: Only A4, B5, and Letter size plain paper can be fed.

(4) Print head alignment

Since it is NOT necessary to perform print head alignment at setup or installation of the machine, the function is only briefly introduced at the installation.

If print quality is not satisfying (such as dot mis-alignment on a line), perform print head alignment.

Two types of print head alignment are available.

- Automatic print head alignment:

    Perform via the machine operation panel, using the Print Head Alignment Sheet.

    Print the first page of the Print Head Alignment Sheet in the manual print head alignment mode first, then fill in the applicable circles on the sheet, and scan the sheet.

    In automatic print head alignment, only the first page of the Print Head Alignment Sheet is used.

    If automatic print head alignment is not effective, perform manual print head alignment.

    Note: If all the necessary circles are not filled in, or the alignment sheet is not placed properly on the platen glass for scanning, the automatic print head alignment error will occur. In such a case, start from printing a blank form of the Print Head Alignment Sheet again.

- Manual print head alignment:

    Perform via the machine operation panel or from the MP driver.

2. CLEANING MODE AND AMOUNT OF INK PURGED

To prevent printing problems due to bubbles, dust, or ink clogging, print head cleaning is performed before the start of printing (when the cleaning flag is on), except in the following cases:

- Cleaning on arrival: Performed when the scanning unit (printer cover) is closed.
- Manual cleaning / deep cleaning: Performed manually.

<Cleaning mode list>

Black: Pigment-based black

Color: Dye-based cyan, magenta, yellow

Condition	Details	Amount of ink used (g) (in the normal temperature/humidity environment)	Est. required time (sec.) (not including the time of opening the caps)
On arrival of the machine (All in sequence)	First to third cleaning after shipped from the plant.	0.50 (Black) 1.12 (Color) Black only for the 3rd cleaning.	97 47 for the 3rd cleaning
Dot count cleaning (Black)	When the specified number of dots are printed since the previous Black cleaning.	0.20 (Black)	46 (Black)
Timer cleaning - 0*1 (Black only)	If 24 to 60 hours have elapsed since the previous Black cleaning till the start of the next printing.	0.20 (Black)	46 (Black)
Timer cleaning - 1 (Black only)	If 60 to 240 hours have elapsed since the previous Black cleaning till the start of the next printing.		
Timer cleaning - 2*2 (All in sequence/Black/Color)	If 240 to 336 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	0.20 (Black) 0.46 (Color)	46 (Black) 36 (Color) 37 (All in sequence)
Timer cleaning - 3 (All in sequence)	If 336 to 1,080 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	0.54 (Black) 0.79 (Color)	83
Timer cleaning - 4 (All in sequence)	If 1,080 to 2,160 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	0.77 (Black) 0.79 (Color)	85
Timer cleaning - 5 (All in sequence)	If 2,160 to 4,320 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	1.39 (Black) 0.79 (Color)	88
Timer cleaning - 6 (All in sequence)	If 4,320 or longer hours have elapsed since the previous Black/Color cleaning till the start of the next printing.		88
At print head replacement (All in sequence)	When the print head is removed and installed.	0.50 (Black) 1.12 (Color)	97
At ink tank replacement*3 (Black/Color/All in sequence)	When an ink tank is replaced (without the print head removal or re-installation)	0.33 (Black) 0.79 (Color)	81 (All in sequence) 47 (Black) 51 (Color)
Manual cleaning (Black/Color/All at the same time)	- Via the operation panel (All at the same time only) - Via the MP driver (Selectable from Black, Color, or All at the same time)	0.20 (Black) 0.46 (Color)	37 (All at the same time) 46 (Black) 36 (Color)
Deep cleaning (Black/Color/All at the	Via the MP driver (Selectable from Black, Color, or All at the same time)	1.63 (Black) 0.79 (Color)	89 (All at the same time) 54 (Black)

			52 (Color)
If the print head has not been capped before power-on (All in sequence)		0.33 (Black) 0.79 (Color)	81 (All in sequence)

*1: When 24 to 60 hours have elapsed since the previous Black cleaning, timer cleaning - 0 is performed. However, this cleaning will be conducted up to 5 times from the machine installation, and no further timer cleaning - 0 will be performed.

*2: The period of time since the previous cleaning is counted by Black and Color separately. For this reason, the cleaning mode may differ according to Black or Color.

*3: When only the black ink tank is replaced, Black cleaning is performed. One of the color ink tanks is replaced, Color cleaning is performed. Both the black and color ink tanks are replaced, All-at-the-same-time cleaning is performed.

3. PRINT MODE

   	Default setting
   	Selectable in the printer driver Main tab
   	Selectable after clicking Custom in the Main tab

Ink used   PigBk: PGI-5BK
           C: CLI-8C
           M: CLI-8M
           Y: CLI-8Y
           c: CLI-8C (small droplet)
           m: CLI-8M (small droplet)
Print control   Bi: Bi-directional
           Uni: Uni-directional

3-1. Normal Color Printing via Computer

Paper type (Canon specialty paper)	Item	MP driver Custom setting				
		5 Fast	4	3	2	1 Fine
Plain paper	Print quality Resolution HxV (dpi) Print control Ink used	Custom 300x300 1 pass, Bi PigBk/C/M/Y	Fast 600x600 1 pass, Bi PigBk/C/M/Y	Standard 600x600 1 pass, Bi PigBk/C/M/Y	High 600x600 4 passes, Bi PigBk/C/M/Y/c/m	
Photo Paper Pro (PR-101)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	Custom 600x600 16 passes, Bi C/M/Y/c/m
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss (PP-101/SG-201)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Photo Paper Plus Double Sided (PP-101D)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Matte Photo Paper (MP-101)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Glossy Photo Paper (GP-401/501)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
High Resolution Paper (HR-101)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Envelope	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 3 passes, Bi PigBk/C/M/Y	High 600x600 4 passes, Bi PigBk/C/M/Y/c/m	
T-Shirt transfer (TR-301)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 6 passes, Bi C/M/Y		
Other Photo Paper	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 8 passes, Bi C/M/Y/c/m		

3-2. Normal Grayscale Printing via Computer

Paper type (Canon specialty paper)	Item	MP driver Custom setting				
		5 Fast	4	3	2	1 Fine
Plain paper	Print quality Resolution HxV (dpi) Print control Ink used	Custom 300x300 1 pass, Bi PigBk	Fast 600x600 1 pass, Bi PigBk	Standard 600x600 1 pass, Bi PigBk	High 600x600 4 passes, Bi PigBk	
Envelope	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 2 passes, Uni PigBk	High 600x600 4 passes, Uni PigBk	

3-3. Borderless Printing via Computer

Paper type (Canon specialty paper)	Item	MP driver Custom setting				
		5 Fast	4	3	2	1 Fine
Plain paper	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 2 passes, Bi C/M/Y		
Photo Paper Pro (PR-101)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	Custom 600x600 16 passes, Bi C/M/Y/c/m
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss (PP-101/SG-201)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Photo Paper Plus Double Sided (PP-101D)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Matte Photo Paper (MP-101)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Glossy Photo Paper (GP-401/501)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m	
Other Photo Paper	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 8 passes, Bi C/M/Y/c/m		

3-4. Manual Duplex Printing via Computer

Paper type (Canon specialty paper)	Item	MP driver Custom setting				
		5 Fast	4	3	2	1 Fine
Plain paper	Print quality Resolution HxV (dpi) Print control Ink used	Custom 300x300 1 pass, Bi PigBk/C/M/Y	Fast 600x600 1 pass, Bi PigBk/C/M/Y	Standard 600x600 1 pass, Bi PigBk/C/M/Y	High 600x600 1 pass, Bi PigBk/C/M/Y/c/m	
Plain paper, borderless printing	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 2 passes, Bi C/M/Y		
Photo Paper Plus Glossy Double Sided (PP-101D)	Print quality Resolution HxV (dpi) Print control Ink used			Standard 600x600 4 passes, Bi C/M/Y/c/m/k	High 600x600 6 passes, Bi C/M/Y/c/m/k	

3-5. Card / Camera Direct Printing

Paper type (Canon specialty paper)	Item	Fast	Standard	High
Plain paper	Print quality Resolution HxV (dpi) Print control Ink used		Standard 600x600 1 pass, Bi PigBk/C/M/Y	High 600x600 4 passes, Bi PigBk/C/M/Y/c/m
Glossy Photo Paper (GP-401/501)	Print quality Resolution HxV (dpi) Print control Ink used	2-6	Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m
Photo Paper Pro (PR-101)	Print quality Resolution HxV (dpi) Print control Ink used		Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m
Matte Photo Paper (MP-101)	Print quality Resolution HxV (dpi) Print control Ink used		Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss (PP-101/SG-201)	Print quality Resolution HxV (dpi) Print control Ink used		Standard 600x600 4 passes, Bi C/M/Y/c/m	High 600x600 6 passes, Bi C/M/Y/c/m

3-6. Copying

Paper type (Canon specialty paper)	Item	Fast	Standard	High
Plain paper Single sided, B&W (Borderless printing not supported)	Resolution HxV (dpi) Print control Ink used	300x300 1 pass, Bi PigBk	600x600 1 pass, Bi PigBk	600x600 4 passes, Bi PigBk
Plain paper Single sided, Color (Borderless printing not supported)	Resolution HxV (dpi) Print control Ink used	300x300 1 pass, Bi PigBk/C/M/Y	600x600 1 pass, Bi PigBk/C/M/Y	600x600 4 passes, Bi PigBk/C/M/Y/c/m
Glossy Photo Paper (GP-401/501) Single sided, B&W/Color	Resolution HxV (dpi) Print control Ink used		600x600 4 passes, Bi C/M/Y/c/m	600x600 6 passes, Bi C/M/Y/c/m
Photo Paper Pro (PR-101) Single sided, B&W/Color	Resolution HxV (dpi) Print control Ink used		600x600 4 passes, Bi C/M/Y/c/m	600x600 6 passes, Bi C/M/Y/c/m
Matte Photo Paper (MP-101) Single sided, B&W/Color	Resolution HxV (dpi) Print control Ink used		600x600 4 passes, Bi C/M/Y/c/m	600x600 6 passes, Bi C/M/Y/c/m
Photo Paper Plus Glossy Photo Paper Plus Semi-gloss (PP-101/SG-101) Single sided, B&W/Color	Resolution HxV (dpi) Print control Ink used		600x600 4 passes, Bi C/M/Y/c/m	600x600 6 passes, Bi C/M/Y/c/m

4. FAQ (Problems Specific to the MP510 and Corrective Actions)

No.	*	Function	Phenomenon	Condition	Cause	Corrective action	Possible call or complaint
1	A	Installation	Ink tank installed in a wrong position		The ink tank is installed in a wrong position.	Open the scanning unit (printer cover), and install the ink tank(s) properly.	- Ink tank installation error.
2	B	Installation	Print head installation error		Insufficient allowance of the print head positioning part.	Remove and re-install the print head.	- Print head installation error.
3	B	Paper feed	No paper feeding	- Paper feeding from the ASF - Postcard	The paper feed roller slips on the paper at paper feeding.	1. Perform paper feed roller cleaning. 2. Clean the paper feed roller with pre-moistened wipe or moistened cloth. 3. Correct paper curl. If the problem persists, adjust the printer guide to leave approx. 0.5 mm between the guide and the paper edge.	- Paper out error - Paper cannot be fed - Cannot print
4	C	Paper feed	Multi-feeding	- In the high temperature and high humidity environment	In the high temperature and high humidity environment, the frictional force between the front and back sides of paper becomes high, and sheets stick to each other, contributing to multi-feeding.	1. Fan the paper before setting them. 2. In case of PR-101, set the paper sheet by sheet. 3. Recommend use of the ASF for printing on both sides of paper (manual duplex printing).	- Multiple sheets of paper are fed simultaneously. - Blank paper is ejected.
5	B	Paper feed	Envelope not feeding	- Envelope	The paper feed roller slips on the paper at paper feeding. Note: Depending on the paper lots.	1. Perform paper feed roller cleaning via the operation panel. 2. Clean the paper feed roller with pre-moistened wipe or moistened cloth. 3. Reduce the number of envelopes set in the ASF. 4. Flatten the envelope (with a pen). 5. If the paper support is extended, retract it.	- Paper out error - Paper cannot be fed - Cannot print
6	C	Paper feed	Paper jam		1. As the LF roller slips on the paper, the paper is not fed, causing the jam error at paper ejecting. 2. The printer guide is not properly set. 3. The paper source where the paper is set is not selected. 4. When the tab of the paper support is raised, the Legal size paper hits it before the paper is completely ejected. 5. If the rear cover is not properly attached, the edge of paper contacts the rear cover during	1. Remove the jammed paper from the paper pick-up side. 2. Confirm that the printer guide is properly adjusted. 3. Confirm that the paper source is properly selected. 4. For Legal size paper, close the tab of the output paper support. 5. In case of a paper jam in the front feeder, confirm that the rear cover securely fits in place after the paper previously jammed in the front feeder was removed.	- Paper jam error - Paper cannot be fed - Cannot print

No.	Level	Category	Symptom	Condition	Mechanism	Countermeasure	User-visible effect
					paper feeding, resulting in a paper jam.		
7	B	Print results	Smearing on printed side		When paper is curled, the edge of paper rises, causing the print head to rub against the printed surface of paper, resulting in smearing.	1. Correct the paper curl. 2. Recommend printing in the print quality assurance area.	- Smear on the printed side of paper - Cannot print properly - Paper edge crease
8	B	Print results	Smearing on the back side of paper, or on the address side of postcards		When borderless printing is performed continuously, ink mist attaches to the platen ribs, and is transferred to the backside of the following paper.	1. Perform Bottom plate cleaning via the operation panel. Change the paper in each Bottom plate cleaning. The cleaning can end when paper does not get any smearing. 2. Clean the platen ribs with cotton swabs, etc.	<Photo Paper Plus Double Sided> Smears on the already printed side when printing the other side <When printing the address side of postcards> Smears on the address side <When printing the message side of postcards> Smears on the backside
9	C	Print results	Horizontal lines or uneven print density at the trailing edge of paper		When the paper end comes off the pinch roller, printing is performed without the paper being held, preventing the ink drops from being ejected in the correct positions, resulting in unevenness.	1. Recommend printing in the print quality assurance area. 2. Change the print quality from Standard to High mode. 3. Try other paper (PP-101).	- Cannot print to the bottom edge of paper - Lines or uneven print density appear in the trailing edge of paper - Cannot print properly
10	C	Installation	Error in print head alignment	- Automatic print head alignment using the Print Head Alignment Sheet	1. Some circles on the Print Head Alignment Sheet were not filled in. 2. The sheet was not placed properly on the platen glass.	Press the OK button to clear the error. Perform print head alignment again, from printing of a blank form of the Print Head Alignment Sheet. When starting over print head alignment, always start from printing out the blank form (scanning of the filled-in sheet alone cannot be performed).	- Error in print head alignment
11	B	Other	Removal of the front feeder guide collar	- At removal of the rear cover	Since the collars are loosely attached, they are easy to be removed when touched.	Attach the removed part. Advise a user not to contact the collars when the rear cover is opened.	- A part is removed

* Occurrence level:

    A: The symptom is likely to occur frequently. (Caution required)

    B: The symptom may occur under certain conditions, but likeliness is assumed very low in practical usage.

    C: The symptom is unlikely to be recognized by the user, and no practical issues are assumed.

Part 3

APPENDIX

←→

1. BLOCK DIAGRAM

1-1. PIXMA MP510

Link to a PDF file for printing
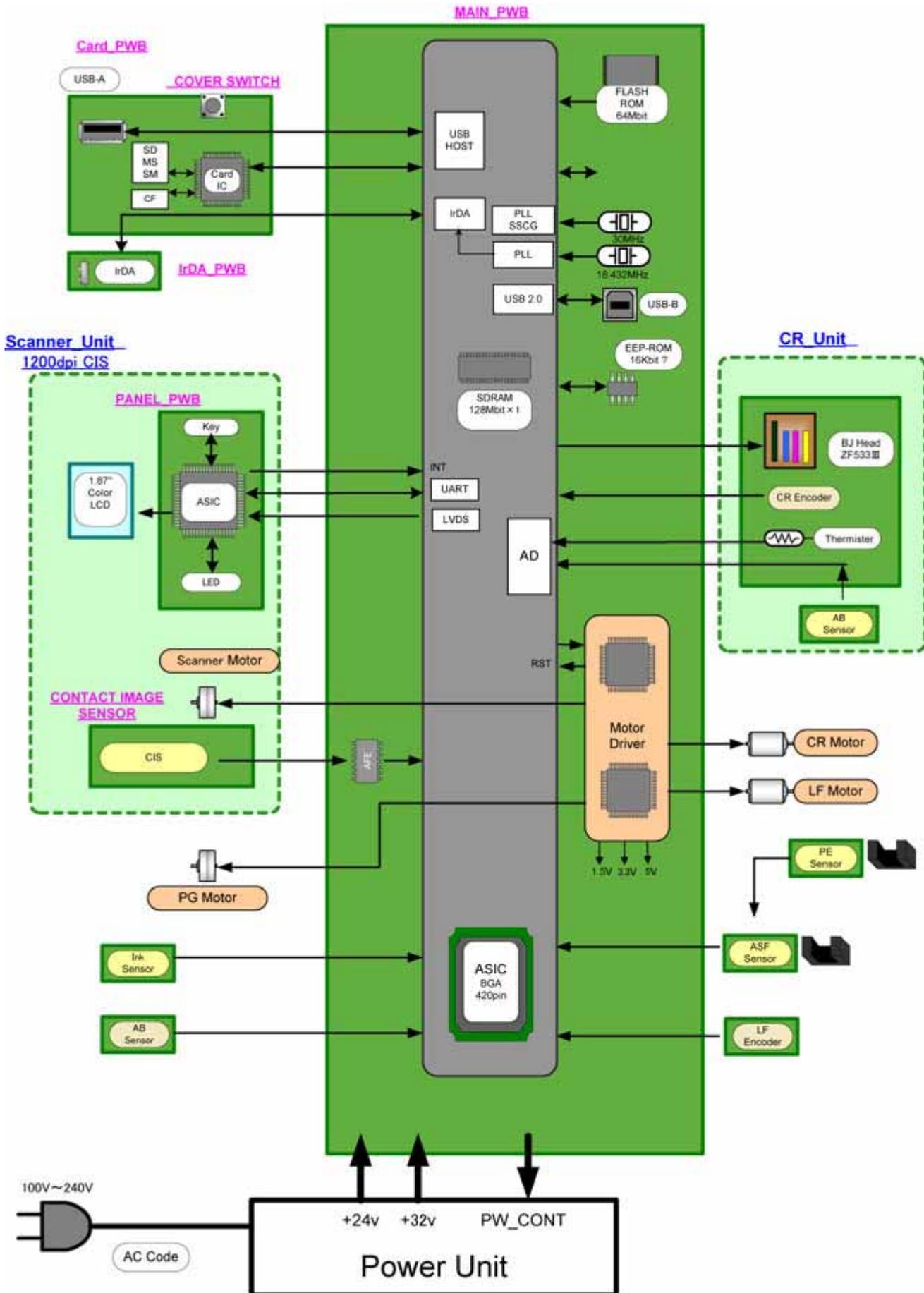
2. CONNECTOR LOCATION AND PIN LAYOUT

2-1. Logic Board Ass'y
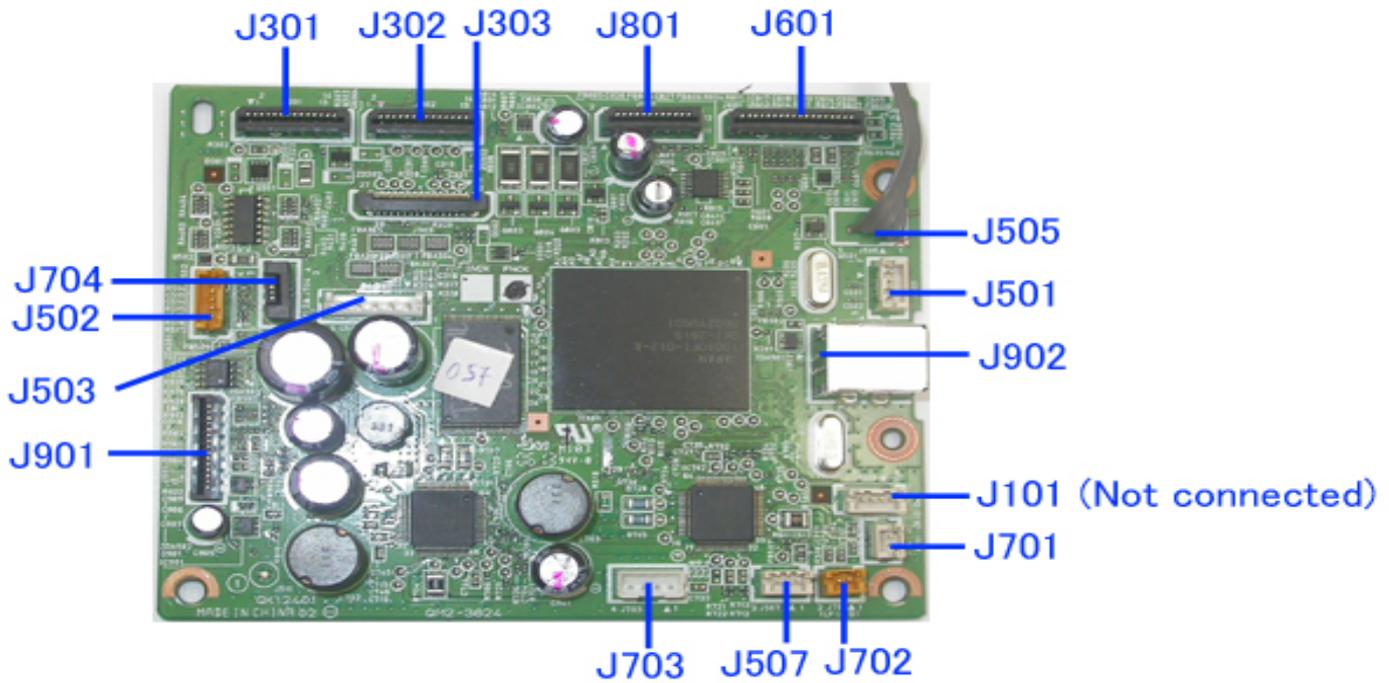
J301 (Print Head 1/3 [Carriage Unit])

No.	Signal name	Function	Input / Output
1 to 4	VH_GND	Head drive ground	-
5 to 9	VH	Head driver power supply +24V	OUT
10 to 14	VH_GND	Head drive ground	-

J302 (Print Head 2/3 [Carriage Unit])

No.	Signal name	Function	Input / Output
1 to 2	HVDD	Head logic power supply +3.3V	OUT
3 to 5	VH	Head logic power supply +24V	OUT
6	SGND	System ground	-
7	B_DIA	Diode sensor anode B	IN
8	SGND	System ground	-
9	A_DIA	Diode sensor anode A	IN
10	SGND	System ground	-
11	ENC_OUT_A	Encoder output signal A	IN
12	SGND	System ground	-
13	ENC_OUT_B	Encoder output signal B	IN
14	ENC_PWR	Encoder drive power supply +3.3V	OUT

J303 (Print Head 3/3 [Carriage Unit])

No.	Signal name	Function	Input / Output
1	AB_PWR	Ink tank sensor chip power supply	OUT
2	AB_DATA	Ink tank sensor data power supply	BUS
3	AB_PWR	Ink tank sensor chip power supply	OUT
4	AB_CLK	Ink tank sensor data transfer clock signal	BUS
5	THERMO	Carriage temperature sensor signal	IN
6	H_ENB2	Head heat enable signal 2	OUT
7	HD9_Y2	Head data (Y2)	OUT
8	HD13_C2	Head data (C2)	OUT
9	HD11_M2	Head data (M2)	OUT
10	HD12_SC2	Head data (SC2)	OUT
11	HD10_SM2	Head data (SM2)	OUT
12	ROM_DIO	Head EEPROM input - output data	IN/OUT
13	SGND	System ground	-
14	H_CLK	Head data transfer clock signal	OUT
15	SGND	System ground	-
16	ROM_SK	Head EEPROM serial clock signal	OUT
17	HLAT	Head data latch signal	OUT
18	HD8_Y1	Head data (Y1)	OUT
19	ROM_CS	Head EEPROM chip select signal	OUT
20	HENB1	Head heat enable signal1	OUT
21	HENB3	Head heat enable signal 3	OUT
22	HD2_C1	Head data (C1)	OUT
23	HENB0	Head heat enable signal0	OUT
24	HD0_K1	Head data (BK1)	OUT
25	HD4_M1	Head data (M1)	OUT
26	HD1_K2	Head data (BK2)	OUT
27	HD5_SM1	Head data (SM1)	OUT
28	HD3_SC1	Head data (SC1)	OUT

J501 (LF Encoder)

No.	Signal name	Function	Input / Output
1	GND	Ground	-
2	ENCA	LF encoder phase A	IN
3	VSEN	Sensor power supply +3.3V	OUT
4	ENCB	LF encoder phase B	IN

J502 (Ink Sensor / Ink Tank Sensor)

No.	Signal name	Function	Input / Output
1	SNS_AB	Ink tank sensor signal	IN
2	VSEN_3.3V	Ink tank sensor power supply	OUT
3	SNS_INK	Ink sensor signal	IN
4	GND	Ground	-
5	INK_PWM	Ink tank sensor signal	IN

J503 (Power Supply Unit)

No.	Signal name	Function	Input / Output
1	VM	Motor power supply +32V	OUT
2,4	GND	Ground	-
3	VH	Head power supply +24V	IN
5	PW_DWN	Power supply control signal	OUT

J505 (ASF_PE Sensors)

No.	Signal name	Function	Input / Output
1	SES_ASF	ASF sensor	IN
2	SES_PE	PE sensor	IN
3	GND	Ground	-
4	VSEN_3.3V	Sensor power supply +3.3V	OUT

J507 (Main Cam Sensor)

No.	Signal name	Function	Input /Output
1	VSEN_3.3V	Sensor power supply +3.3V	OUT
2	GND	Ground	-
3	SNS_MAIN_CAM	Main cam sensor	IN

J601 (Operation Panel / LCD)

No.	Signal name	Function	Input / Output
1	GND	Ground	-
2	PANEL_RSTX	Panel reset signal	OUT
3	GND	Ground	-
4	PANEL_INT	Panel interruption signal	IN
5	+3.3V	LCD drive power supply +3.3V	OUT
6	LVCLK-	LV clock-	OUT
7	LVCLK+	LV clock+	OUT
8	5V	Power supply +5V	OUT
9	LVDATA-	LV data-	OUT
10	LVDATA+	LV data+	OUT
11	GND	Ground	-
12	RXD	Reception signal	IN
13	TXD	Transmission signal	OUT
14	ERROR_LED	Alarm LED	IN
15	POWER_LED	Power LED	IN
16	STOP_SW	Stop/Reset switch	IN
17	POW_SW	Power switch	IN
18	GND	Ground	-

J701 (Carriage Motor)

No.	Signal name	Function	Input / Output
1	CR_M	CR motor+	OUT
2	CR_MN	CR motor-	OUT

J702 (LF Motor)

No.	Signal name	Function	Input / Output
1	LF_M	LF motor+	OUT
2	LF_MN	LF motor-	OUT

J703 (Purge Unit Motor)

No.	Signal name	Function	Input / Output
1	PG_MA	PG motor phase A+	OUT
2	PG_MB	PG motor phase B+	OUT
3	PG_MAN	PG motor phase A-	OUT
4	PG_MBN	PG motor phase B-	OUT

J704 (Scanner Motor)

No.	Signal name	Function	Input / Output
1	SC_MAN	Scanner motor phase A-	OUT
2	SC_MA	Scanner motor phase A+	OUT
3	SC_MB	Scanner motor phase B+	OUT
4	SC_MBN	Scanner motor phase B-	OUT

J801 (Scanner Unit)

No.	Signal name	Function
1	GND	Digital ground
2	LED_R	LED drive signal（Red）
3	LED_G	LED drive signal（Green）
4	LED_B	LED drive signal（Blue）
5	LED_Vcc	LED power supply
6	XPH1	Clock output
7	XTG	SH output
8	REV_V	CIS reference power supply
9	Vcc(3.3V)	CIS power supply
10	GND	Digital ground
11	XPH2（RES_SEL）	CIS resolution switch

J901 (Memory Card)

No.	Signal name	Function	Input / Output
1	+3.3V	Drive power supply +3.3V	OUT
2	D-	D- signal	BUS
3	D+	D+ signal	BUS
4	GND	Ground	-
5	DOOR	Cover switch signal	IN
6	CARD_RST	Card reset signal	OUT
7	CARD_INT	Card interruption signal	IN
8	GND	Ground	-
9	IR_RXD	IrDA reception signal	IN
10	IR_TXD	IrDA transmission signal	IN
11	+5.0V	Drive power supply +5.0V	OUT
12	VBUS	PictBridge VBUS power supply	OUT
13	D-	D- signal	BUS
14	D+	D+ signal	BUS
15	S_GND	System ground	-

J902 (USB 2.0 I/F)

No.	Signal name	Function	Input / Output
1	SNS_USB	USB VBUS power supply sensor	IN
2	D-	USB D- signal	BUS
3	D+	USB D+ signal	BUS
4	GND	Ground	-
5	L_GND	Logic ground	-
6	L_GND	Logic ground	-
7	L_GND	Logic ground	-
8	L_GND	Logic ground	-

2-2. Card Slot Board
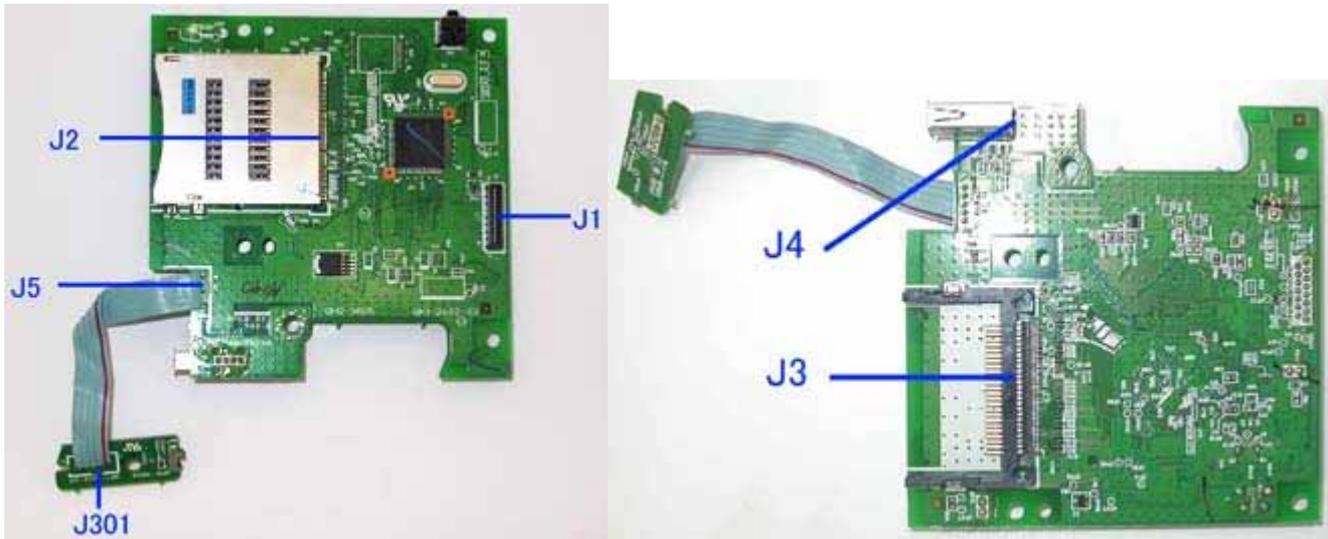
J1 (Logic Board)

No.	Signal name	Function	Input / Output
1	GND	Ground	-
2	DSC D+	Camera Direct D+ signal	IN/OUT
3	DSC D-	Camera Direct D- signal	IN/OUT
4	VBUS	PictBridge VBUS power supply	IN
5	+5.0V	Power supply	IN
6	Ir_TXD	IrDA reception signal	IN
7	Ir_RXD	IrDA reception signal	OUT
8	GND	Ground	-
9	INTX	Interruption signal	OUT
10	RESETX	Reset signal	IN
11	COVER	Cover switch signal	OUT
12	GND	Ground	-
13	D+	D+ signal	IN/OUT
14	D-	D- signal	IN/OUT
15	+3.3V	Logic power supply	IN

J2 (SmartMedia, Memory Stick, SD (MMC))

No.	Signal name	Function	Input / Output 入出力
1	SD_WPSW	SD write protect	IN
2	SD_WP_GND	SD write protect ground	-
3	SD_CD	SD card detect	OUT
4	SD_CD_GND	SD card detect ground	-
5	SM_CDSW	SM card detect	OUT
6	SM_CDSW_GND	SM card detect ground	-
7	SM_VCC	SM logic power supply	OUT
8	SM_CDX	SM card detect	OUT
9	SM_D4	SM 16 bit data bus	IN/OUT

10	SM_GND	SM ground	-
11	SM_D5	SM 16 bit data bus	IN/OUT
12	SM_D3	SM 16 bit data bus	IN/OUT
13	SM_D6	SM 16 bit data bus	IN/OUT
14	SM_D2	SM 16 bit data bus	IN/OUT
15	SM_D7	SM 16 bit data bus	IN/OUT
16	SM_D1	SM 16 bit data bus	IN/OUT
17	SM_LVD	SM low voltage detection	IN
18	SM_D0	SM 16 bit data bus	IN/OUT
19	SD_DAT1	MMC/SD 16 bit data bus	IN/OUT
20	MS_GND	MS ground	-
21	SD_DAT0	MMC/SD 16 bit data bus	IN/OUT
22	MS_BS	MS bus state	IN
23	SD_GND	SD ground	-
24	MS_VCC	MS logic power supply	OUT
25	SD_CLK	MMC/SD clock	IN
26	MS_DIO(D0)	MS 16 bit data bus	IN/OUT
27	SD_VCC	SD logic power supply	OUT
28	Reserve(D2)	MS 16 bit data bus	IN/OUT
29	SD_GND	SD ground	-
30	MS_INS	MS insertion detection	IN
31	SD_CMD	MMC/SD command	IN/OUT
32	Reserve(D3)	MS 16 bit data bus	IN/OUT
33	MS_SCLK	MS system clock	IN
34	SD_DAT3	MMC/SD 16 bit data bus	IN/OUT
35	MS_VCC(D1)	MS logic power supply	IN
36	SD_DAT2	MMC/SD 16 bit data bus	IN/OUT
37	MS_GND	MS ground	-
38	SM_GND	SM ground	-
39	SM_WPX-IN	SM write protect	IN
40	SM_BSYX	SM busy	IN
41	SM_WEX	SM write enable	IN
42	SM_REX	SM read enable	IN
43	SM_ALE	SM address latch enable	IN
44	SM_CEX	SM chip enable	IN
45	SM_CLE	SM command latch enable	IN
46	SM_VCC	SM logic power supply	OUT
47	SM_GND	SM ground	-
48	SM_WPSW	SM write protect	IN
49	SM_WPSW_GND	SM write protect ground	-
50	Frame_GND	Frame ground	-
51	Frame_GND	Frame ground	-

J3 (CompactFlash)

No.	Signal name	Function	Input / Output
1	GND	CF ground	-
2	CF_D3	CF 16 bit data bus	IN/OUT
3	CF_D4	CF 16 bit data bus	IN/OUT
4	CF_D5	CF 16 bit data bus	IN/OUT
5	CF_D6	CF 16 bit data bus	IN/OUT
6	CF_D7	CF 16 bit data bus	IN/OUT
7	CF_CS0X	CF chip select	OUT
8	GND(CF_A10)	Ground (CF 24 bit address bus)	-
9	GND(CF_ATASELX)	Ground (CF output enable)	-
10	GND(CF_A9)	Ground (CF 24 bit address bus)	-
11	GND(CF_A8)	Ground (CF 24 bit address bus)	-
12	GND(CF_A7)	Ground (CF 24 bit address bus)	-
13	VCC	CF logic power supply	OUT
14	GND(CF_A6)	Ground (CF 24 bit address bus)	-
15	GND(CF_A5)	Ground (CF 24 bit address bus)	-
16	GND(CF_A4)	Ground (CF 24 bit address bus)	-
17	GND(CF_A3)	Ground (CF 24 bit address bus)	-
18	CF_A2	CF 24 bit address bus	IN/OUT
19	CF_A1	CF 24 bit address bus	IN/OUT
20	CF_A0	CF 24 bit address bus	IN/OUT
21	CF_D0	CF 16 bit data bus	IN/OUT
22	CF_D1	CF 16 bit data bus	IN/OUT
23	CF_D2	CF 16 bit data bus	IN/OUT
24	CF_IOCS16X	Not used	IN/OUT
25	CF_CD2X	CF card detect	OUT
26	CF_CD1X	CF card detect	OUT
27	CF_D11	CF 16 bit data bus	IN/OUT
28	CF_D12	CF 16 bit data bus	IN/OUT
29	CF_D13	CF 16 bit data bus	IN/OUT
30	CF_D14	CF 16 bit data bus	IN/OUT
31	CF_D15	CF 16 bit data bus	IN/OUT
32	CF_CS1X	CF chip select	OUT
33	CF_VS1X	CF voltage sense	IN
34	CF_IORDX	CF read strobe input - output	IN/OUT
35	CF_IOWRX	CF write enable input - output	IN/OUT
36	VCC(CF_WEX)	CF logic power supply (write enable)	IN
37	CF_INTRQ	CF interruption	IN
38	VCC	CF logic power supply	OUT
39	GND(CF_CSELX)	CF ground (chip select)	-
40	CF_VS2X	CF voltage sense	IN

41	CF_RESETX	CF reset	IN
42	CF_IORDY	CF ready input - output	IN/OUT
43	CF_INPACKX	Not used	IN
44	VCC(CF_REGX)	CF register select	OUT
45	CF_DASPX	Not used	-
46	CF_PDIAGX	Not used	-
47	CF_D8	CF 16 bit data bus	IN/OUT
48	CF_D9	CF 16 bit data bus	IN/OUT
49	CF_D10	CF 16 bit data bus	IN/OUT
50	GND	CF logic ground	-
51	PEG(FGND)	Not used	-
52	PEG(FGND)	Not used	-

J4 (Digital Camera Connector)

No.	Signal name	Function	Input / Output
1	DSC_VBUS	PictBridge VBUS power supply	OUT
2	DSC D-	Camera Direct D- signal	IN/OUT
3	DSC D+	Camera Direct D+ signal	IN/OUT
4	DSC_SGND	Ground	-
5 to 8	DSC_FGND	Ground	-

J5 (IrDA Board)

No.	Signal name	Function	Input / Output
1	Ir_3.3V	Logic power supply	OUT
2	Ir_RXD	IrDA reception signal	IN
3	Ir_TXD	IrDA reception signal	OUT
4	Ir_GND	Ground	-
5	Ir_FGND	Ground	-

J301 (Memory Card Board)

No.	Signal name	Function	Input / Output
1	Ir_3.3V	Logic power supply	IN
2	Ir_RXD	IrDA reception signal	OUT
3	Ir_TXD	IrDA reception signal	IN
4	Ir_GND	Ground	-
5	Ir_FGND	Ground	-

<Part 3: 2. CONNECTOR LOCATION AND PIN LAYOUT; 2-2. Card Slot Board>

2-3. Operation Panel Board

J1 (Logic Board)

No.	Signal name	Function	Input / Output
1	DGND	Ground	-
2	POWER_SW	Power switch	OUT
3	STOP/RESET_SW	Stop/Reset switch	OUT
4	LED_POW	Power LED display	IN
5	LED_ERR	Error LED display	IN
6	PN_RXD	Transmission signal	OUT
7	PN_TXD	Reception signal	IN
8	DGND	Ground	-
9	LVDATA+	LCD data signal+	IN
10	LVDATA-	LCD data signal-	IN
11	+5V	Power supply	IN
12	LVCLK+	LCD clock signal+	IN
13	LVCLK-	LCD clock signal-	IN
14	+3.3V	Logic power supply	IN
15	PNL_INT	Panel interruption signal	OUT
16	DGND	Ground	-
17	PNL_RSTX	Panel reset signal	IN
18	DGND	Ground	-

J2 (LCD Unit)

No.	Signal name	Function	Input / Output
1	LED_SHDNX	Backlight-on operation enable	OUT
2	LED_POW	Power supply	OUT
3	VDD	Power supply	OUT
4	Vss	Ground	-
5	LED_Vss	Ground	-
6	DB7	Display data 7	OUT
7	DB6	Display data 6	OUT
8	DB5	Display data 5	OUT
9	DB4	Display data 4	OUT
10	DB3	Display data 3	OUT
11	DB2	Display data 2	OUT
12	DB1	Display data 1	OUT
13	DB0	Display data 0	OUT
14	WDB	Write signal	OUT
15	RS0	Register select signal	OUT
16	RSTB	Reset signal	OUT
17	CS1B	Chip select signal	OUT
18	RDB	Power supply	OUT

2-4. Carriage Board
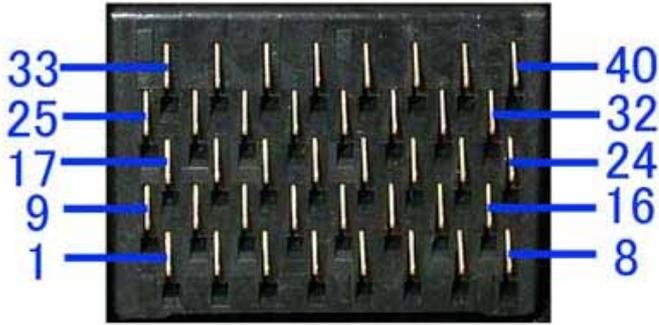
No.	Signal name	Function
1,2	A_GNDH	Head ground
3	HD2_C1	Head data C1
4	HD8_Y1	Head data Y1
5	VSS	Logic ground
6	PBK1	Logic ground
7,8	B_GNDH	Head ground
9	HD3_SC1	Head data SC1
10	HD5_SM1	Head data SM1
11	HD4_M1	Head data M1
12	HENB1	Head heat enable signal 1
13	HD10_SM2	Head data SM2
14	VSS	Logic ground
15	HD11_M2	Head data M2
16	B_DiK	Logic ground
17	HD0_K1	Head data BK1
18	HENB0	Head heat enable signal 0
19	HENB3	Head heat enable signal 3
20	HLAT	Head data latch signal
21	HD12_SC2	Head data SC2
22	PBK2	Logic ground
23	HD9_Y2	Head data Y2
24	HENB2	Head heat enable signal 2
25	HD1_K2	Head data BK2
26	A_DiK	Logic ground
27,35	HVDD	Head logic power supply +3.3V
28	ROM_CS	Head EEPROM chip select signal
29	HCLK	Head data transfer clock signal
30	ROM_DO	Head EEPROM data signal
31	HD13_C2	Head data C2
32,40	B_VH2	Head drive power supply +24V
33,34	A_VH	Head logic power supply +24V
36	ROM_SK	Head EEPROM serial clock signal
37	ROM_DIO	Head EEPROM data signal
38	B_DiA	Diode senor anode
39	VHT	Head drive power supply +24V

3. PIXMA MP510 SPECIFICATIONS

<Machine>

Type	Desktop serial color inkjet printer
Paper feeding method	Auto sheet feed (auto sheet feeder, front feeder)
Resolution	4,800 x 1,200dpi (Max.)
Throughput (target value)	- 4 x 6, borderless printing: Approx. 47 sec. (PP-101 4x6, borderless printing, default settings)* For reference: Custom 5 Standard Remarks Black (Fine Black) 25ppm 13.9ppm Paper feeding from the ASF Color (Fine Color) 17ppm 10.4ppm Paper feeding from the ASF * Based on Canon standard pattern. Print speed may vary depending on system configuration, interface, software, document complexity, print mode, page coverage, type of paper used and does not take into account data processing time on host computer. Note: Notations for the Americas should be confirmed with the related marketing section of each sales company in the Americas.
Printing direction	Bi-directional, uni-directional
Print width	Max. 203.2mm (215.9mm in borderless printing)
Interface	- Computer: USB 2.0 Hi-Speed, Bluetooth ver. 1.2 (optional) - Camera Direct: PictBridge with a PictBridge-supported digital camera and digital video camera - Mobile phone: IrDA 1.2, Bluetooth ver. 1.2 (optional), both for JPEG files only

ASF paper feed specifications	Stacking capacity	Max. 13 mm (Approx. 150 sheets of 64 g/m^2 plain paper)		
	Paper weight	64 to 105 g/m^2, Canon specialty paper 273 g/m^2 at the maximum		
	Paper specifications	Type	Size	Stacking capacity (sheets)
		Plain paper		Approx. 150 (13mm)
			Legal	10
		Super White Paper SW-201	A4, Letter	Approx. 100 (13mm)
		High Resolution Paper HR-101N	A4, Letter	Approx. 80
		Photo Paper Pro PR-101	A4, Letter, 8x10	10
			4x6, 4x8, Wide	20
		Photo Paper Plus Glossy PP-101	A4, Letter, 5x7	10
			4x6	20
		Photo Paper Plus Semi-gloss SG-201/101	A4, Letter, 8x10	10
			4x6	20
		Glossy Photo Paper GP-401	A4, Letter	10
			4x6, Credit Card	20
		GP-501/502	A4, Letter	10
			4x6	20
		Matte Photo Paper MP-101	A4, Letter	10
			4x6	20
		Photo Paper Plus Double Sided PP-101D	A4, Letter, 5x7	1
		Photo Stickers PS-101	4x6	1
		T-shirt Transfer TR-301	A4	1
		Envelope	DL-size, COM#10	10

Front feeder paper feed specifications	Stacking capacity	Max. 10 mm (Approx. 100 sheets of 64 g/m2 plain paper)
	Paper weight	64 to 105 g/m^2
	Paper specifications	Plain paper (10 mm or less, approx. 100 sheets): A4, B5, Letter only

Detection functions	Scanning unit open, Presence of print head / ink tanks, Remaining ink amount (optical / dot count), Ink tank position, Paper presence, Paper end sensor, Ink amount in the ink absorber, Internal temperature, Paper lifting plate position, Paper feed roller position, Carriage position, Supported camera direct printing device, Presence of memory card, Scanner home position

Acoustic noise	- Printing from a computer:
	36 dB (A) (Photo Paper Pro, highest print quality settings, paper feeding from the ASF)
	- Copying:
	38.5 dB (A) (Photo Paper Pro, highest copy quality settings, paper feeding from the ASF)

Environmental requirements	During operation	Temperature	5C to 35C (41F to 95F)
		Humidity	10%RH to 90%RH (no condensation)
	Non operation	Temperature	0C to 40C (32F to 104F)
		Humidity	5%RH to 95%RH (no condensation)

Power supply	Power supply voltage, frequency	Power consumption (copy)[*1]	Standby	Power-off[*2]
	AC 100 to 240V, 50/60Hz	Approx.25W	Approx. 2.0W	Approx. 0.8W
	*1: When copying ISO/JIS-SCID N2 on A4 plain paper with the standard settings			
	*2: Scanner light turned off			

External dimensions	- With the trays retracted: Approx. 444 (W) x 365 (D) x 171 (H)mm
	- With the trays extended: Approx. 444 (W) x 627 (D) x 297 (H)mm
	- With the scanning unit opened (max.): Approx. 444 (W) x 627 (D) x 435 (H)mm

Weight	Approx. 7.0 kg, including the print head and excluding the optional units

Related standards (Machine)	Electromagnetic radiance:
	VCCI, FCC, IC, CE Mark, Taiwan RPC, C-Tick, CCC (EMC), Korea MIC, Gost-R
	Electrical safety:
	Electrical Appliance and Material Safety Law (DENAN), UL, C-UL, CB Report, CE Mark, GS, Gost-R, FT, SASO, CCC, SPRING, Korea EK, IRAM (Argentine)
	Environmental regulations:
	RoHS (EU), WEEE (EU), Korea Package Recycle Law, Green Point (Germany), Energy Star, Eco Mark, Law on Promoting Green Purchasing

Serial number location	The label is attached to the spur guide inside the printer.

Remaining ink amount detection	Available (detection by optical method and dot count, enabled at default)

Paper type detection	Not available

Print head alignment	Available
	- Automatic alignment: Perform via the operation panel, using the Print Head Alignment Sheet.
	- Manual alignment: Perform via the operation panel, or from the MP driver Maintenance tab.

<Scanner>

Type	Flat bed scanner (scanning of a fixed document by a moving scanner head)
Sensor type	CIS (Contact Image Sensor)
Optical resolution	1,200 x 2,400 dpi (max.)
Scanning resolution (software interpolation)	19,200 x 19,200 dpi (max.)
Gradation (input / output)	Grayscale: 16 bit / 8 bit
	Color: 48 bit / 24 bit (RGB each color 16 bit / 8 bit)
Document size	Platen glass: A4 / Letter (Max.)

<Copy>

Copy quality	3 levels (Fast, Standard, High)
Intensity	9 levels (automatic intensity adjustment available)
Enlargement / reduction ratio	25 to 400%
Copy speed	A4 color document: Approx. 33 sec.
	For reference:
	- Monochrome copy: 25cpm
	- Color copy: 17cpm
	Note: - Document copy speed is based on copying the manuscript "ISO/IEC FCD24712: Newsletter" (digital data printed by offset) using default settings on plain paper. Black text / color (CPM) are based on "fast mode" setting using Canon standard pattern on plain paper. Copy speed

		may vary depending on document complexity, copy mode, page coverage, type of paper used, etc. and does not take into account warming up time. - Notations for the Americas should be confirmed with the related marketing section of each sales company in the Americas.
Document size		A4 / Letter (max.)

Enlargement / reduction		Preset ratio:
		   max. (400%), 4x6 -> LTR (212%), 5x7 -> LTR (170%), A5 -> A4 (141%), B5 -> A4 (115%), A4 -> LTR (95%), A4 -> B5 (86%), A4 -> A5 (70%), min. (25%)
		Zoom:
		   25 to 400% (in increments of 1%)

Number of continuous copies		Monochrome / color: 1 to 99 copies

<Direct printing>

Memory card drive	Supported memory card	Compact Flash TYPE I/II (3.3V), Microdrive, SmartMedia Card (3.3V only, 1MB and 2MB not supported), Memory Stick, Memory Stick PRO, SD card, MultiMedia Card (ver. 3.31), xD-Picture Card*, miniSD card*, Memory Stick Duo*, RS-MMC (ver. 3.31), Memory Stick PRO Duo* * Adapter required.
Storage function	Operation	Via the machine buttons.
	Condition	Before changing the settings, the memory card must be removed.
	Function	Read / Write
Card Direct Printing	File format	JPEG (DCF, CIFF, Exif 2.21 or prior, JFIF), DPOF compliant
	Print quality	Standard, High
	Image correction function	VIVID, Photo Optimizer PRO, Noise reduction, Face brightener, Image optimizer
	Image adjustment function	Brightness, contrast, color hue (skin tones)
	Image processing function	Not available
	Image retrieval function	Not available
	DPOF	Ver. 1.00 compliant Index printing, printing of an image the specified number of copies, printing of the specified image(s), printing with the shooting date

	Print layout	Single-photo/multi-photo/all-photo printing:
		   1 photo per page (borderless/with borders, only with borders for plain paper)
		
		Index printing:
		   6, 15, 24, 35, 80 photos per page
		   72 photos per page (for 8x10)
		
		Layout printing:
		   2, 4, 8 photos per page (borderless/with borders)
		   Half (borderless/with borders, with/without lines)
		   Album (4 photos per page, right/left)
		   Mix 3 types (for A4/LTR)
		
		Sticker printing:
		   16 stickers

	Information print	Shooting date, file number
	Throughput	Approx. 55 seconds (4" x 6" borderless) Note: - When printing a 6 megapixel image taken by certain Canon digital camera from a memory card on default settings using Photo Paper Plus Glossy without border. Actual print speed may vary depending on image data, print mode, type of paper and type of memory card used. - Notations for the Americas should be confirmed with the related marketing section of each sales company in the Americas.
		- Default (selections based on the machine settings) - 4" x 6" Photo Paper Pro, Photo Paper Plus Glossy, Photo Paper Plus Semi-gloss, Glossy Photo Paper, Photo Stickers[*1]

Camera Direct Printing (PictBridge)	Supported paper size	- 5" x 7"
		
		    Photo Paper Pro, Photo Paper Plus Glossy, Photo Paper Plus Semi-gloss, Glossy Photo Paper
		
		- Credit Card
		
		    Glossy Photo Paper
		
		- 8" x 10"
		
		    Photo Paper Pro
		
		- A4 / Letter
		
		    Photo Paper Pro, Photo Paper Plus Glossy, Photo Paper Plus Semi-gloss, Glossy Photo Paper, plain paper
		
		*1: Canon-brand sticker.	

	Supported paper type	- Default (selections based on the machine settings) - Photo: Photo Paper Plus Glossy, Glossy Photo Paper - Fast Photo: Photo Paper Pro - Plain paper: A4 / Letter plain paper	
	Print layout	- Default (selections based on the machine settings, borderless/with borders) - 2 photos per page (borderless/with borders) - 4 photos per page - 9 photos per page - 16 photos per page - Layout specific to Canon Photo Stickers	
	Trimming	Follows a connected PictBridge device settings.	
	Image optimization	Default (selections based on the printer settings), ON, OFF, VIVID[*], NR (Noise Reduction)[*], VIVID + NR[*], Face brightener * Available only with a Canon PictBridge camera.	
	Date / file number print	Follows the settings specified in a connected PictBridge device.	
	Throughput	Approx. 57 seconds (4" x 6" borderless) Note: - When printing a 6 megapixel image taken by certain Canon digital camera from PictBridge on default settings using Photo Paper Plus Glossy without border. Actual print speed may vary depending on image data, print mode, type of paper used and device that the printer is connected to. - Notations for the Americas should be confirmed with the related marketing section of each sales company in the Americas.	

\<Print head\>

Type	Single head with 4 removable ink tanks (each color)

Print head	Pigment-based BK:
	  320 nozzles, 600 dpi, 30 pl
	Dye-based C / M / Y:
	  256 x 5 nozzles, 1,200 dpi, 2 pl / 5 pl (C / M), 5 pl (Y)

Ink color	Pigment-based black Dye-based cyan, magenta, yellow
Ink tank	Japan: BCI-9BK (pigment-based), BCI-7eC / M / Y (dye-based) Others: PGI-5BK (pigment-based), CLI-8C / M / Y (dye-based)
Weight (Net)	Print head, approx. 48g
Supply method	As a service part (not including ink tanks)
Part number	QY6-0070-000

\<Supported ink tanks\>

Model name and destination		Pigment-based ink		Dye-based ink					
		PGI-9BK	BCI-5BK	BCI-7eC	BCI-7eM	BCI-7eY	CLI-8C	CLI-8M	CKI-8Y
PIXUS MP510	Japan	O	X	O	O	O	X	X	X
PIXMA MP510	Others	X	O	X	X	X	O	O	O

O: Usable

X: Not usable

Note: The ink tanks for the Japanese models are not compatible with those for the non-Japanese models. Be sure to use the appropriate ink tanks in servicing.